Telephony

May 4, 1935

Alabama and Tennessee Organize

STATE Independent telephone associations organized in Alabama and Tennessee at meetings sponsored by the United States Independent Telephone Association. By-laws adopted and steps taken to complete the organizations. Tennessee elects officers

TWO NEW state Independent telephone associations came into being last month as a result of meetings held in Montgomery, Ala., and Nashville, Tenn., under the direction of the United States Independent Telephone Association. Last fall the national association was instrumental in organizing state associations in Kentucky, South Carolina, Virginia and West Virginia.

At the meeting held April 23 at the Jefferson Hotel, Montgomery, Ala., preliminary steps were taken for the organization of the Alabama Independent Telephone Association. By-laws were drawn up and adopted and the organization committee was instructed to proceed with the necessary steps to incorporate the association and to select officers to serve during the ensuing year. Authorization was given by 21 companies to use their names as charter members.

The Tennessee Independent Telephone Association was organized at a meeting held by representatives of 23 telephone companies of that state at the Hermitage Hotel in Nashville, April 25. By-laws were adopted as recommended by the organization committee and officers elected for the ensuing year. The committee was instructed to take steps to complete the organization of the association.

The Alabama Meeting

The meeting in Montgomery, Ala., was presided over by F. B. MacKinnon, of Chicago, president of the United States Independent Telephone Association. After explaining the purpose of the meeting, Mr. MacKinnon outlined the conditions in the telephone industry today, the competition between the telegraph, cable and radio companies, and the legislation that led up to the organization of the Federal Communications Commission. He pointed out the necessity for close cooperation between the telephone companies, and the special need of that cooperation in educating the public and the members of state and federal commissions as to the problems and needs of the telephone industry.

JAS. N. COX, Who Was Chosen as President of the Newly-Organized Tennessee Independent Telephone Association. Is President of the Southern Continental Telephone Co., Inc., of Cookeville.

There ensued a general discussion of the desirability of the organization of an association in Alabama. The matter having been put to a vote, it was decided to proceed to organize the Alabama association. To that end a committee of five members was appointed to draft by-laws and report upon the steps which must be taken in order to incorporate the organization under the laws of Alabama. This committee consisted of G. A. Crenshaw, of Greenville, chairman; B. H. Stallworth, Monroeville; Dr. W. C. Brasswell, Luverne; W. H. Vaughan, of Florala; and R. H. Liddell, of Camden.

This committee held a meeting during the recess for lunch and, when the afternoon session had been called to order by Mr. MacKinnon, recommended a set of by-laws and reported upon the form of organization necessary for incorporating the association under the laws of Alabama.

The committee was authorized to proceed with the organization of the association and to select officers to serve until the next annual meeting. Mr. Crenshaw was elected secretary of the committee. Authority was given by 21 companies for the use of their names as charter members of the association.

Upon the conclusion of the business session, the telephone men had the pleasure of listening to an address by Hugh White, chairman of the Alabama Public Service Commission. The speaker emphasized the fact that the people of the country are "rate minded" and advised all telephone companies to keep that in mind. He also cautioned them to remember that the best argument in favor of reasonable rates is good service. "It is essential that the companies have in mind the value of the service to the subscriber," declared the speaker.

Among those present at the Alabama meeting were the following:

J. A. Sanders, Mutual Telephone Co., Beatrice; W. M. Olive, Brantley Telephone Co., Brantley; R. H. Liddell, Camden Telephone Co., Camden; D. D. Crapps, Dozier Telephone Exchange, Dozier; P. G. Mathis, Elba Telephone Exchange, Elba; E. E. Survant, Gulf Service Co., Foley; W. H. Vaughan, Florala Telephone Co., Florala; J. A. Miller, Jr., Miller Telephone Co., Fruitdale; J. F. Alsabrook, Gantt Telephone Co., Gantt.

Lonnie Caman, Southwestern Telephone Co. of America, Geneva; Ray E. Folmar, Goshen Telephone Co., Goshen; G. A. Crenshaw, Greenville Telephone Exchange, Greenville; W. C. Brown, Headland Telephone Co., Headland; W. C. Brasswell, Luverne Telephone Co., Luverne; F. A. Symonds, West Florida Telephone Co., Mariana, Fla.; L. L. Davenport, Midland City Telephone Co., Midland City; B. H. Stallworth, Monroeville Telephone Co., Monroeville; D. G. Wood, New Brockton Telephone Exchange, New Brockton.

R. C. Carr, Oneonta Telephone Co., Oneonta; B. F. Lanier, Opp Telephone Exchange, Opp; Wasson Harmon, St. Clair County Telephone Co, Pell City; Joe Dunn, Pine Hill Telephone Co, Pine Hill; F. M. Cauthen, Roanoke Telephone Co., Roanoke; F. W. Kuhn, Standard Telephone & Telegraph Co., Troy; and Lon J. Darley, Alabama Public Utilities Co., Jackson, Miss.

Tennessee Association Organized

The meeting in Nashville, participated in by 35 representatives of Tennessee telephone companies, was likewise presided over by President MacKinnon of the national association. Mr. MacKinnon explained briefly the purpose of the meeting and then set forth in some detail the conditions in the communications industry and the various influences that brought about the creation of the Federal Communications Commission.

These influences, as outlined by the speaker, included the desire of governmental representatives for better control by the federal authorities of our international communications system, including the cable, radio and telephone companies; the competitive struggle between the telegraph companies and the competition with the latter companies by the American Telephone & Telegraph Co. in its leased wire and teletypewriter services.

Mr. MacKinnon explained that the procedure followed by the Federal Communications Commission since its organization, insofar as it has not been in line with the procedure the Independent companies think it should have followed, was due to lack of information regarding the telephone industry, particularly relative to the Independent group.

This lack of information, continued the speaker, is the cause of contests between the state commissions and telephone companies, and between telephone companies and their subscribers. The place to begin to give out information, declared Mr. MacKinnon, is by telephone managers to their employes, then to the subscribers, and from the subscribers to the public authorities, most of whom are themselves subscribers as well.

A better understanding of the telephone business by subscribers means

W. N. McANGE, Jr., Elected Vice-President of the New Tennessee Association, Is President of the Inter-Mountain Telephone Co., Bristol.

a better understanding of the problems of the telephone companies by the regulatory commissions. The great advantage of associations is that they enable the companies to cooperate in giving the subscribers the information they need to understand the telephone business.

For these reasons, declared Mr. MacKinnon, there should be an organization in every state to assist the companies in explaining their operations to their subscribers. Accordingly, the United States Independent Telephone Association called a meeting in Tennessee, as it had in other states not previously organized, for the purpose of forming a state association.

There was a general discussion upon the conclusion of Mr. MacKinnon's very logical and informative address upon the desirability of organizing an association in Tennessee. A motion was then made and adopted that the meeting should proceed with the organization of a state association. A committee of seven was then chosen to draft the necessary by-laws and recommend officers.

This committee was comprised of A. U. Meadows, assistant to president of the Inter-Mountain Telephone Co., Bristol, Tenn.; B. M. Carr, of the Mutual Home Telephone Co., Cookeville; H. W. Vaughan, of the Waynesboro (Tenn.) Telephone & Telegraph Co.; J. A. Arnold, of the Woodbury (Tenn.) Home Telephone Co.; D. G. Delaney, of the Collerville (Tenn.) Telephone Co.; W. R. Gilbert, of the McKenzie (Tenn.) Home Telephone Co.; and B. H. Piepmeier, of the Southern Continental Telephone Co., Cookeville.

This committee met during the noon recess and agreed upon a set of by-laws and a list of officers for recommendation to the meeting. The report of the organization committee was accepted by the convention at the afternoon meeting and the committee was instructed to proceed with the organization of the Tennessee Independent Telephone Association. The officers elected are as follows:

President, Jas. N. Cox, Cookeville; vice-presidents, W. N. McAnge, Jr., Bristol, D. G. Delaney, Collerville, J. A. Arnold, Woodbury; and secretary-treasurer, H. W. Vaughan, Waynesboro.

Before the meeting was adjourned, an excellent address was presented by Harvey H. Hannah, chairman of the Tennessee Railroad & Public Utilities Commission, analytical of present conditions and inspired with hopefulness for the future.

Among those present at the meeting were the following:

M. D. Durbins, Adamsville Telephone Co., Adamsville; L. T. Ketching, Alexandria Home Telephone Co., Alexandria; Mrs. Louise J. Whiteside, Bethpage Telephone Co., Bethpage; A. U. Meadows, Inter-Mountain Telephone Co., Bristol; J. E. Crowley, Bruceton-Hollowrock Telephone Co., Bruceton; B. M. Carr, Mutual Home Telephone Co., Cookeville; Jas. N. Cox, Southern Continental Telephone Co., Cookeville; Ed Burnette, Celina Telephone Co., Celina;

D. G. Delaney, Collerville Telephone Co., Collerville; Ralph D. Beatty, Cornersville Telephone Co., Cornersville; B. F. Groover, Sequatchie Valley Mutual Telephone Co., Dunlap; W. M. Lanier, Jr., Inter-County Telephone Co., Englewood; J. A. Vires, Enville Telephone Co., Enville; H. A. Stoker, Gleason Rural Telephone Co., Gleason; A. W. Jenkins, LaFayette Home Telephone Co., LaFayette;

R. E. Tate, McKenzie Home Telephone Co., McKenzie; Walter Phillips, Mount Juliet Telephone Co., Mount Juliet; Allen J. Green, Nolensville Telephone Co., Nolensville; J. E. Evinson, Smithville Home Telephone Co., Smithville; W. Comer Moore, Soddy Telephone Co., Soddy; T. H. Haynes, Unionville Telephone Co., Unionville; H. W. Vaughan, Waynesboro Telephone & Telegraph Co., Waynesboro; and J. A. Arnold, Woodbury Home Telephone Co., Woodbury.

Great Lakes Ship-to-Shore Telephone Service

By STAFF CORRESPONDENT

INDEPENDENT TELEPHONE COMPANY develops ship-to-shore radio telephone service on the Great Lakes. Results of first season's operation of this service by subsidiary of the Lorain (Ohio) Telephone Co. No technical knowledge is required for operation of ship station equipment. Technical operator adjusts shore station equipment and has remote control of certain operations on board ship.

VESSELS navigating the Great Lakes have been served for many years by wireless telegraph service. In recent years, however, this original equipment has become both obsolete and worn out and has not been replaced by vessel owners.

This abandonment of communication service has proven inconvenient and many times has been expensive in cases of accident and disaster. That there is a definite need for a communication service to vessels on the Great Lakes cannot be controverted; and telephone service has been found to answer this need as it has answered the communication needs in practically every other line of business.

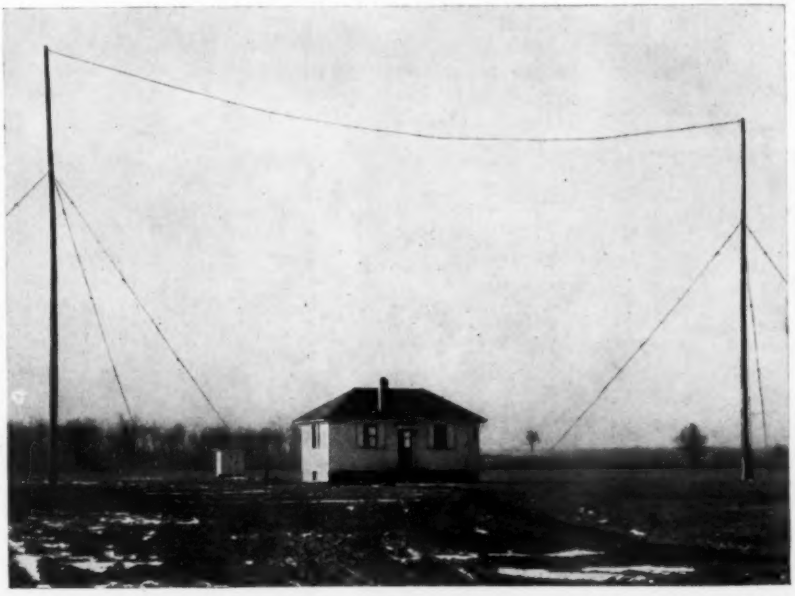
The size and importance of Great Lakes vessels are not well appreciated by persons living at a distance from this great water area. It is not generally known that more tonnage of bulk freight passes through the Soo canal locks, between Lake Huron and Lake Superior, than through any other locks in the world. Great Lakes vessels are larger than many ocean vessels, a number exceeding 600 feet in length. The tonnage carried by one of these is quite astounding.

These freight vessels carry 300 carloads of coal, even with present low water levels. A cargo of 500,000 bushels of wheat is common. Most of the coal consumed by the factories and homes in the great northwestern states has probably traveled a great portion of the distance by water in the cavernous holds of Great Lakes freighters. The ore from which much of the nation's steel is produced is brought to the steel mills by these freight vessels.

There are few businesses anywhere having an investment of a million dollars that do not have telephone communication. There are many Great Lakes freight vessels that cost a million or more dollars. The machinery and equipment for navigation of the vessel is of the best and of latest types, and living quarters are luxuriously furnished.

Still these freighters have no means of communication. For them the telephone stands ready to supply this need. The cost is small compared with the value of the vessel; and if one day in a season can be saved, the total cost of the service is more than paid for the entire season.

The Lorain (Ohio) Telephone Co., through its subsidiary company, the Lorain Radio Corp., began the development of this telephone service for the Great Lakes in 1932. Equipment and service needs were studied and a radio station built near Lorain, Ohio, for furnishing telephone connections between the ships and the land telephone system. In the spring of 1934 the service was inaugurated.



Building Which Houses the Shore Station Equipment and Transmitting Antenna of the Shore Unit. For Future Antenna Installations of Directional Characteristics 40 Acres of Land Are Available. The Receiving Antennae Are Located About 800 Feet Away from the Transmitting Antenna. All Power and Telephone Lines Are Underground.

The first vessel to be equipped with telephone service was the steamer, Wm. C. Atwater. This vessel was built in 1925 and is said to be the best equipped freighter on the Great Lakes. Over 600 feet in length; equipped with gy-

ro-compass, radio direction finder, fathometer and luxuriously-furnished passenger quarters, it was fitting that this vessel should be the first to be equipped with a modern radio telephone, providing a two-way service with any land telephone system.

The shipping season in 1934 was late in opening, due to heavy ice in the upper lakes. The Wm. C. Atwater departed on the first trip of the season on May 4 and the telephone service was officially opened on May 5 by a special broadcast program through Station WTAM, Cleveland.

The captain of the Atwater, E. R. Morton, conversed with Captain Joseph Wood, head of the Wilson Transit Co., owner of the Atwater. Captain Morton also talked with his wife and newspapermen. H. B. McNaughton, representing the National Broadcasting Co. and Station WTAM, gave a description of the vessel for the benefit of broadcast listeners from the observation room of the vessel while under way. The broadcast lasted for 15 minutes, and the telephone conversations were broadcast by WTAM for the radio audience.

Engineers of the Lorain Radio Corp. made the first trip with this vessel and were in constant communication with the land station at Lorain. Many test calls were made through the toll board of the Lorain Telephone Co. These tests furnished much valuable data and proved the success of the service.

Those of the Lorain company who made the first trip were E. I. Deighan, who was in charge of the sales organization, and R. A. Fox, engineer in charge of development and construction of the equipment. H. P. Boswau supervised the operation of the shore station equipment.

Close-Up of Top Shelf Unit of Transmitter All Units Are Designed for Quick Assembly in the Cabinet and Rapid Replacement in Case of Damage.

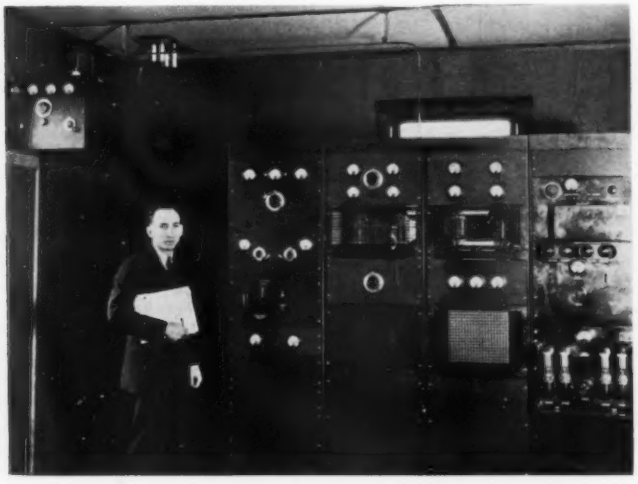
Equipment requirements were made very rigid. The equipment is so constructed that no technical knowledge is required for its operation. Since such service requires alternate radio transmitting and receiving at rapid intervals, it was decided that all switching should be made automatic.

The captain of the vessel has charge of the telephone equipment; and to make his service as convenient as possible, the entire equipment was designed to operate as any land line telephone. There are no adjustments required. The operation of the equipment is entirely automatic and consists merely of taking the handset from the cradle and talking.

Calls from ships go by radio to the toll board of the Lorain Telephone Co. and calls are then handled by the regular long distance operators. Special operators are not provided for handling this service. A ship call brings in a lamp on the toll board, and any operator may complete the connection in the regular way.

At the land radio station a technical operator is in charge. His duties are to maintain the adjustments of the shore equipment and to keep a log of all traffic handled and notes on the equipment operation. By means of the radio carrier wave of the shore station, the technical operator has remote control of certain operations of the equipment aboard ships.

Persons on land may call the ship in the regular manner through the Lorain toll board. A special calling scheme is used that signals the boat called without disclosing to any other vessel the identity of the vessel called. While a connection is established between any boat and the shore, other boats are locked-out for



Radio Transmitter at WMI Which Is Rated at 750 Watts But Is Operated at, and Is Licensed for, a Power Output of 500 Watts. To the Right Is Seen the Receiving Equipment at WMI, Shore Station End of Great Lakes Radio Telephone System, Composed of Frequency Measuring Equipment, Radio Receiving Equipment and Necessary Equipment to Combine Land Lines With Radio Link.

the duration of the call. They receive a busy tone if they remove their receiver while such a connection is in use. At the same time the radio transmitter is rendered inoperative so that no interference can be caused the communication already established.

In order to handle the traffic that the future seems to indicate, more shore stations will be required. This will mean more frequencies (wave lengths) will be needed. Boats on Lake Superior will connect to the land telephone system through a land station on Lake Superior, on Lake Michigan through another station on Lake Michigan, and so on for lakes Huron and Ontario. Lake Erie is already served by the present station.

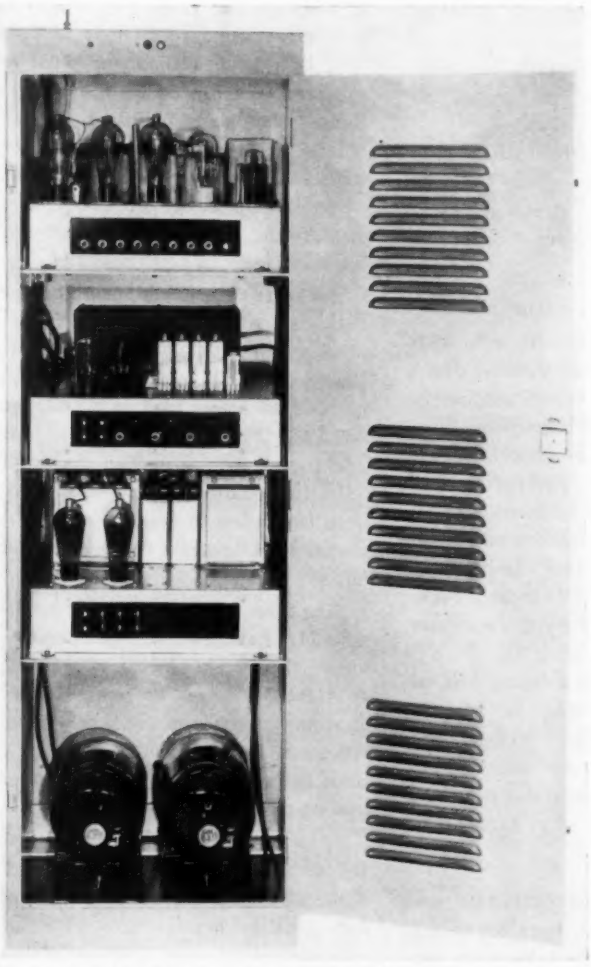
Additional shore stations will require that equipment aboard ship be able to change frequency by a simple operation requiring no technical knowledge. This has been provided for in the present equipment.

The Federal Communications Commission has already set aside channels for the service. These have been so selected that calls can be handled on the different lakes without interfering with traffic on any other.

The present equipment for use on shipboard is designed to operate on four different frequencies without electrical adjustments. A standard four-button ringing key is mounted as a part of the telephone instrument.

To change the frequency of both the radio transmitter and receiver to the proper channels for any lake the vessel may be on, requires only that the user push the proper button. This button is located with the telephone instrument, any distance away from the radio equipment that is convenient. The telephone instrument is usually installed in the captain's private office, while the equipment is located in a suitable place some distance away.

The second vessel to be telephone equipped was the private yacht the "Edis." This cruiser is only 25 feet in length and never leaves Lake Erie waters. A special equipment has been designed for yacht service and has been made smaller and of simpler construction than that installed aboard the two Great Lakes freight vessels.



The Ship Radio Telephone Station. The Only External Apparatus Is the Handset Type of Telephone Instrument. On the Top Shelf Is Located the Transmitter; on the Second Shelf, the Receiver and Control Relays; on the Third Shelf, the Power Supply Rectifier; and on the Fourth Shelf, the Converters or Motor-Generator Sets.

The third vessel to be equipped was the steamer, James MacNaughton. This ship is of the same general design as the Wm. C. Atwater and is also owned by the same steamship company.

Captain E. R. Morton, master of the steamer, Wm. C. Atwater, was much interested in the possibilities of the radio telephone and was very helpful in conducting tests and in assisting in the compiling of service data. His help was valuable in making many useful improvements. As though in reward for this interest, Captain Morton's life was saved by the use of the radio telephone.

Early on the morning of August 27, 1934, Captain Morton was going down the companionway from the upper deck when he slipped and fell down the steel stairway. He suffered two severe scalp wounds, a broken nose and other injuries. There was no doctor and those on board were unable to stop the excessive loss of blood.

Captain Morton's daughter was a passenger for the trip. She telephoned for a doctor and was quickly connected with Dr. A. T. Grills, at Lorain, Ohio. The good doctor was not yet out of bed but directed the first-aid operations aboard the Great Lakes freighter, more than 300 miles away, from his own bedside ashore.

This first-aid service was credited with saving the captain's life. The vessel was seven hours out of the closest port, but doctors and an ambulance were notified as to time of arrival of the ship by means of the radio telephone and were on the dock when the vessel arrived.

In addition to the first-aid assistance, the owners were able to direct the business activities of the vessel and had another captain on hand to take charge of the Wm. C. Atwater on arrival in port.

There were many times during the season when the vessels were given orders for change in destination by their owners. Frequently they were given weather reports and aids to navigation.

The MacNaughton was saved from going aground in the Detroit river by a telephone call advising the captain of low water caused by high winds. Two other vessels had already gone aground.

The future of radio telephone, ship-to-shore service has been assured by the first season of operation. Its future growth will be influenced by general trade recovery. The day will undoubtedly come when every vessel of importance will be equipped with ship-to-shore telephone service, since it has been proved the answer to the marine communication problem.

Politics and Telephones Don't Mix

OUT IN the western cattle country of the United States farmers are leaving their land because "dust storms" are blowing away the top soil—just as the early cattlemen predicted when they warned against the plowing up of buffalo grass ranges.

Up in Canada the province of Alberta is abandoning its plan of government ownership and operation of telephone lines, because experience has shown that political management of a business enterprise proves too expensive for taxpayers.

The American farmers are seeking other fields. The Alberta public ownership planners are selling the telephone plants back to private operators at a big loss in order to make service possible and to prevent still greater losses.

SINCE 1905, when the Canadian provinces of Alberta, Saskatchewan and Manitoba were given local autonomy, they have been experimenting in utility operation at the expense of the taxpayers. Public ownership was a fad. Alberta has been operating its own telephone system as a government enterprise at a loss estimated at over $10,000,000 and is now ready to quit the job, leaving a run-down plant that needs more than half that amount to put it in efficient condition.

The only solution left is to sell the lines to local groups, and give private management an opportunity to rescue the service from complete demoralization.

This is being done and, of course, at a heavy loss to the government—meaning the taxpayers. In one instance a plant that cost the province $48,560 was sold for $2,396. The difference represents the measure of deterioration and waste that took place under political management.

LAST week's TELEPHONY reported that 120 new mutual telephone companies have been organized in Alberta in recent months to take over the lines that government ownership tried to operate, only to fall a victim to political failure. About 2,340 miles of telephone lines already have been sold by the provincial government to private management, and there are still 15,500 miles to be disposed of.

Mutual companies are being formed to take over other parts of the telephone system, on terms that the government is willing to make extraordinarily favorable in order to clear up the gigantic mistake.

Although the Alberta government's investment in telephones runs over $492 a telephone—thanks to political methods—the mutual groups are taking over the plants practically at their own price. The average price paid per mile has been $12.50 with 25 per cent cash down, the balance to run two years without interest.

THE COLLAPSE of the Alberta experiment in government ownership of telephone service is described by J. Lambert Payne, former comptroller of statistics for the Canadian Department of Railways and Canals, in an article which appeared in the April issue of Nation's Business. The title of the article is "Politics at the Switchboard."

It is written without an effort to urge an opinion on public ownership of utilities, but gives cold facts and figures that show plainly how easy it is for a governmental agency to waste taxpayers' money in handling so intricate a business as telephone service. Mr. Payne's dispassionate study of the results sounds a warning against the trend toward government operation of service companies in the United States.

Accurate records do not go back earlier than 1911. In that year Alberta had 20,136 miles of wire, 14,424 telephones and a telephone funded debt of $2,388,000. By the end of 1932, wire mileage had risen to 293,711, the number of telephones to 62,635 and the debt to $30,887,478. The annual interest charges were $1,745,513, and they were not earned that year by $742,992.

In 1933 the deficit increased and as the province had been compelled to seek financial aid from the Dominion government, Alberta could no longer carry the telephone burden.

"It, therefore, made a clean breast to the people," says Mr. Payne, "and proceeded to salvage what it could out of the wreck. It has now transpired that something as unlooked for as an annual deficit had also occurred. A sinking fund was fundamental in the Alberta scheme. All seems to have gone well with that fund until revenues began to fall off, on one hand, and operating expenses mounted on the other.

"At all events, when the crash came scarcely any sinking fund could be found. Back of that lies the whole story of mismanagement, neglect of the physical structure, political administration rather than sound business administration, and the complete failure of primary optimism."

A COMPARISON of the results of political management in Alberta with private operation of the telephone systems in Nova Scotia, New Brunswick and Prince Edward Island is made by Mr. Payne who lets the figures speak for themselves.

In Alberta in 1911 the capital liability per telephone was $165.56. By 1932 this had risen to $492.13. Under private management in Nova Scotia the capital liability in 1911 per station was $212.74 and in 1932 it was $176.13.

Lowered revenues due to the business depression hastened the disaster in Alberta, but Mr. Payne's com-

parison shows that the Nova Scotia system, through private operation economies, still had net earnings of 3.5 per cent on its common stock in 1932.

"I cannot compare the tolls of state-owned systems in the West with those of privately-operated systems in the East because they are not available," says Mr. Payne, "but I have been advised they are lower in the West. The fact I have tried to emphasize, however, is that the capital liability per telephone unit in the West is much higher than in the East. It is $465.55 in Manitoba, and $492.13 in Alberta. I do not give the figures for Saskatchewan, because the situation in that province is not quite on a comparable footing. On the other hand, the eastern liabilities per telephone are $176.31 in Nova Scotia, $196.91 in New Brunswick, and $135.38 in Prince Edward Island.

"It should help further to an understanding of this matter to glance at the facts as to earnings in their relation to capital liability. Speaking broadly, an increase in funded debt in a business enterprise is not a menace to soundness if net earnings are proportionate. In the case of Alberta, however, that countervail was not present. A gross operating revenue of $439,846 in 1911 was sufficient to carry a liability of $2,338,000 and leave a comfortable balance for the sinking fund. But by the end of 1932 a gross of $3,330,330 left a deficit of $742,992 and nothing for the sinking fund. And that was true of other years.

In the East, Nova Scotia, for example, in 1932 was able to pay operating expenses, $162,842 in taxes, $192,346 in interest charges, and set apart sufficient for a fair dividend on common stock. The Western provinces are not taxed on their investment.

From these facts it becomes reasonably clear that debt was the rock on which the Alberta telephone system foundered. The Eastern corporations were limited in their borrowing to their actual credit, whereas the state-owned telephone systems of the Western provinces encountered no such hindrance."

ENGINEERING experts called in to prescribe for Alberta's public ownership serious illness recommended that $10,500,000 of its telephone liabilities be written off as not being represented by assets, and also that $4,500,000 was necessary to put the lines into fair operating condition.

"In the financial position of Alberta," says Mr. Payne, "this suggested reconstruction work was impracticable; so it was decided to sell the rural lines in parcels to the highest bidders. Selling is now under way. In one instance a line which had cost $48,560 was sold for $2,396; and it is said this difference represents the measure of deterioration that has taken place.

"I have witnessed the rise to political power of the Western Farmers' Party which has figured conspicuously in this matter. Alberta has always been one of its strongholds. Public ownership is the main plank of its platform; and, if this new federal group should win popular approval at the approaching general election, vast changes would follow. All utilities, banking, insurance and so on would pass under the state control. Practically everything would be socialized. What has happened in Alberta must be considered in the light of this agrarian political influence in the Western provinces."

With Alberta selling out its government telephones, and taxpayers shouldering a heavy loss, however, it seems likely that further experiments in public ownership would not be so popular in the future.

Georgia Has Good Convention

ANNUAL meeting of Georgia Telephone Association, held recently in Atlanta, termed most informative in many years. Officers re-elected for the ensuing year

THE ANNUAL convention of the Georgia Telephone Association, held at the Piedmont Hotel, in Atlanta, on April 17, was declared to be the best and most informative meeting held by that organization in many years. With one exception, the officers and directors were re-elected to serve during the ensuing year, L. E. Winget, of the South Carolina Continental Telephone Co., Sumter, S. C., being elected to succeed W. O. Randall, also of that city.

The other directors are as follows: A. A. Fincher, Canton, Ga.; T. Barton Baird, Atlanta; A. N. Seward, Fitzgerald; W. M. New, Thomaston; J. L. Kirk, Moultrie; J. J. Doonan, Atlanta; J. L. Mathews, Statesboro; J. W. Southall, Cairo; and J. T. King, Milledgeville, Ga.

The re-elected officers are as follows: W. M. New, Thomaston, president; J. L. Mathews, Statesboro, first vice-president; A. N. Seward, Fitzgerald, second vice-president; J. Prince Webster, Atlanta, secretary, treasurer and general counsel.

The convention was called to order at 10:15 a. m., Wednesday, April 17, by President W. M. New, who extended a cordial welcome to the telephone folk of Georgia.

The minutes of the last annual meeting, held August 11, 1933, and published in the association's bulletin of August 14, 1933, were then read by J. Prince Webster, of Atlanta, secretary, treasurer and general counsel of the association. A motion for their adoption carried unanimously.

Thereupon Mr. Webster submitted the treasurer's report for the years 1933 and 1934, and it was adopted unanimously.

After the appointment of temporary committees and the making of several announcements, an interesting and informative address was made by F. B. MacKinnon, of Chicago, president of the United States Independent Telephone Association upon the national situation and its bearing upon the telephone industry at the present time.

Mr. MacKinnon outlined the conditions in the communications field which led to the creation of the Federal Communications Commission, and described how the organization is functioning. His talk was listened

to with the keenest of interest by his audience, and he was given a rising vote of appreciation.

Curtis A. Mees, of Atlanta, consulting engineer for the Georgia Public Service Commission, then delivered a very helpful address upon the "Kind of Reports the Commission Requires."

Upon the conclusion of his remarks, Mr. Mees very graciously volunteered to answer any questions that might be troubling the telephone men of the state. Many availed themselves of this opportunity, and for some 20 minutes Mr. Mees was kept busy answering questions, to the interest and enlightenment of everyone present.

At 12:30 p. m. the convention adjourned for lunch. About 50 telephone men and women participated in this enjoyable repast and fellowship, at which President MacKinnon of the national association was guest of honor.

The afternoon session was opened with an address by A. L. Geiger, of Washington, D. C., general attorney of the United States Independent Telephone Asociation, upon the "Federal Income Tax and Depreciation Problems of Telephone Companies." Mr. Geiger's talk was very well received and many were the questions asked and answered, upon its conclusion, in connection with the practical solution of the depreciation problems which the Independent telephone companies are experiencing at the present time.

J. Prince Webster, of Atlanta, secretary, treasurer and general counsel of the association, reviewed at considerable length the activities of the Georgia association last year.

The nominating committee's report was then presented by Miss Marie Kirk, of Dalton, with the recommendation that the present officers and directors be re-elected with the exception that L. E. Winget, of Sumter, S. C., be selected as a successor to W. O. Randall, of that city. The report was adopted as recommended. The complete list of officers and directors has been given previously.

President New announced that he would, in the near future, appoint a temporary committee to confer with the Georgia Public Service Commission with reference to the kind of report and classification of accounts that the commission will be willing to prescribe or authorize in lieu of the present outstanding form.

After some informal discussion, the convention adjourned. In the evening the convention delegates attended a theater party at the Grand Theater, in Atlanta, as guests of the association.

The Operators' Corner

By MRS. MAYME WORKMAN

Traffic Supervisor, The Illinois Telephone Association, Springfield, Ill.

DID YOU ever have the experience of meeting a stranger who was well groomed, neat and dressed in the height of fashion, who impressed you most favorably, and then have this impression completely destroyed when the stranger began to talk? His voice was harsh, his words mumbled and his conversation interspersed with such expressions as, "Oh yeah," "Zat so," and "Sez you."

Good speech is not always easily acquired, which is also true of most things in life. We must work for them. It takes patience and perseverance. But what a satisfaction when the goal has been attained! To know that you are able to converse with anyone, easily, without embarrassment.

Perhaps our operators are inclined to think we stress good voice work a great deal but it is such an important part of the operator's daily work that we must continually be voice-minded.

As has been stated many times, the operator must depend entirely upon her voice to convey to the customer courtesy, and a willingness to please. She is also the company's representative and the customer will form his opinion of the company by the operator's tone of voice.

Clear, distinct enunciation saves time and results in more accurate service. We recognize and appreciate a pleasing tone of voice when it comes to us over the wires from a distant operator. Likewise, our customers appreciate hearing a pleasing, well-modulated tone of voice when they have occasion to contact their operator.

GOOD SPEECH denotes good breeding. A pleasant voice, well-modulated tones and clear enunciation are as pleasing to the ear as good clothes to the eye. No. 191

The average customer thinks of his operator as an individual. He does not visualize a group of girls seated at a switchboard serving all the customers in a particular community. To him she is "Central"—the girl with a pleasant voice who gets his numbers for him quickly, under all circumstances, even on those occasions when he is impatient and sometimes unreasonable. "Central's" voice is always calm and pleasing—and how soothing this is when his nerves are frayed and jumpy! No doubt he sometimes mavels that she does not bark back at him when he barks at her.

Voice training in telephone work is helpful not only in serving our customers, but also in our daily lives. A pleasant, well-modulated voice is a mantle of good breeding and culture. It adds poise and distinction to our makeup. As Shakespeare wrote: "Her voice was ever soft, gentle, and low; an excellent thing in woman."

Questions from Illinois Operators

1. Why is tone of voice so important and how does it affect public relations?
2. When you have a postpay coinbox and instructions are posted *not* to deposit money but the party tells you he did, what would you do?
3. On a collect call where the station-to-station rate is 15 cents and the charge is not accepted and it is "ag paid," does the call take the person-to-person or the station-to-station rate?
4. Is it necessary to keep a copy of the ticket, when connecting a subscriber directly with long distance operator?
5. Subscriber files a person-to-person call and party at called station reports person desired is not available. Later, called party files a station-to-station call to originating station and conversation takes place. Is the report on first call charged?

For answers to these traffic questions, please turn to page 31.

Coils and Condensers In A. C. Communication Circuits

By ARTHUR L. ALBERT
Associate Professor of Communication Engineering, Oregon State College

NINTH ARTICLE in series of electric fundamentals for telephone workers. Frequency range of alternating currents used in communication. Fundamental circuit elements as connected in actual alternating-current circuits. Circuits with coils and condensers

ANY alternating-current circuit can be conveniently represented by the three fundamental circuit elements of *resistance, inductance,* and *capacitance.* These have been studied in previous articles. Alternating-current theory has also been presented. It is now possible to study these fundamental circuit elements as they are connected together in actual alternating-current circuits.

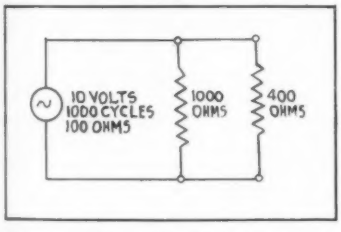


Fig. 1. A Generator Supplying Power to Two Resistors in Parallel.

The characteristics of direct-current circuits are substantially the same under all testing conditions, but this is not true for alternating-current circuits. The characteristics of alternating-current circuits vary greatly with frequency. It is, therefore, important to investigate the frequency range of the alternating currents used in communication before proceeding further.

Frequency Band of Communication Currents: The frequencies employed commercially in electrical communication range from the very low frequencies of the interrupted direct current in telegraph systems (which can be analyzed into a fundamental frequency and harmonics or overtones) up to the very high frequencies of the so-called micro-ray radio systems. An example of the latter is the system now in operation across the English Channel employing a frequency of 1,725,000,000 *cycles* per second (or a wave length of 17.4 *centimeters*)!

It is apparent, therefore, that communication workers must be trained to understand the action of currents at any frequency. Although this is recognized, it is obvious that in these articles the discussion must be largely limited to the voice or audible frequencies which are most commonly used.

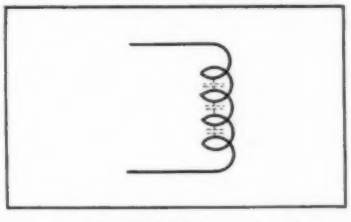


Fig. 2. The Distributed Capacitance Between the Windings of a Coil Is Represented by the Broken Lines.

The frequencies of the speaking voice range from the low frequencies of about 100 cycles per second up to the high-frequency components of about 6000 cycles per second. Extensive tests have shown that satisfactory commercial telephone service is provided if a band from about 250 to 2750 cycles is transmitted. The long distance telephone lines used for supplying high-quality radio programs for broadcast purposes transmit from 50 to 8000 cycles. A good group address system will pass a band *at least* as wide as 100 to 5000 cycles.

From these figures it is evident that telephone workers are usually concerned with frequencies below 10,000 cycles. For the voice range, 1000 cycles lies in the most important part, and hence a 1000-cycle current is usually employed for testing and will, therefore, largely be used for descriptive purposes in these articles.

Resistances in Series and Parallel: The same fundamental relations explained for direct-current circuits apply to resistances in series or parallel in alternating-current circuits. Thus, when two resistors are connected *in series, the total resistance is the sum of the separate resistances.* When two resistors are connected *in parallel, the total or equivalent resistance is less than that of any one,* and is given by the relation,

$$1/R = 1/R_1 + 1/R_2, \text{ etc.} \quad (1)$$

As an illustration, consider the circuit of Fig. 1. The equivalent resistance of the circuit is $1/R = 1/1000 + 1/400$ or $1/R = 0.001 + 0.0025 = 0.0035$, and $R = 1/0.0035 = 286$ ohms. The current through the generator would be $I = 10/(100 + 286) = 0.259$ ampere.

Of course, in alternating-current circuits the resistance used must be the *effective* or *a-c resistance.* For many types of resistors, and for lamps and similar devices, the direct-current and alternating-current resistances are substantially the same.

Inductance Coils in Series: When two inductance coils are connected in series, the total inductance is the *sum* of the separate inductances, and the total resistance is the *sum* of the separate resistances. This assumes that the coils are either situated or shielded in such a manner that the magnetic field from one coil does not link the other coil.

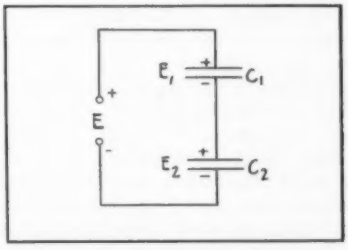


Fig. 3. When Two or More Condensers Are in Series, the Total Voltage Impressed Divides Across the Condensers in Inverse Proportion to Their Capacitances.

If the coils have an air core, the resistance of each at 1000 cycles will be approximately the same as the direct-current resistance. If they have a core of magnetic material, or are so located that their magnetic fields pass through iron or other metal parts, there may be enough hysteresis and eddy current losses to cause the effective or alternating-current resistance to be different from the direct-current or ohmic resistance. Furthermore, this effective resistance will depend on the *magnitude* of the

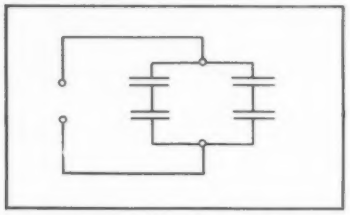


Fig. 4. Four Condensers in a Series-Parallel Group.

current used in making tests, and on the *frequency*.

The measured *inductance* of air-core coils is substantially independent of the test frequency within the voice range. At higher frequencies, however, the measurements may be influenced by the *distributed capacitance* between the windings. Thus the dotted lines of Fig. 2 represent the capacitance distributed between the turns of the coil, the windings themselves acting as the condenser plates.

At radio frequencies, where capacitative reactance is low and inductive reactance is high, much current will flow through the distributed capacitance instead of the turns of wire; and, of course, this will greatly alter the measured or *effective inductance* a coil offers in such high-frequency circuits.

The inductance of an air-cored coil is independent of the magnitude of the current it carries, but this is not true for iron-cored coils. As explained in the article on the magnetic circuit (TELEPHONY of February 16), the amount of flux produced follows the magnetization curve for the material, and a current of *two* amperes *will not* produce *twice* the flux *one* ampere produces. Since inductance can be measured in terms of the flux produced per ampere, the inductance *will vary* with the test current for *coils with magnetic cores*. More will be said about inductance measurements in a following article.

Inductance Coils in Parallel: Surprising as it may seem, no easily understood relations can be given which will apply to all circuits consisting of inductance coils in parallel. The reason for this will be evident after studying the next article of this series, in which parallel circuits will be further discussed. For the present, let it suffice to say that the *equivalent inductance* of two or more coils in parallel is influenced by the *resistance* as well as the inductance of the coils.

A simple relation can be given, however, for parallel coils in which the resistances are low. Thus, a coil having an inductance $L = 0.059$ henry and a resistance of $R = 10$ ohms was connected in parallel with a coil of inductance $L = 0.141$ henry and a resistance of $R = 20$ ohms. These two coils were then connected to an alternating-current impedance bridge (to be considered in a following article), and the *equivalent inductance* of this parallel group was found to be $L = 0.0415$ henry and the equivalent resistance was about 8 ohms.

If the equivalent inductance *had followed* a law similar to that for resistors in parallel, then,

$$1/L = 1/L_1 + 1/L_2 + \text{etc.} \quad (2)$$

Substituting the values of the coils in this expression, $1/L = 1/0.059 + 1/0.141 = 16.95 + 7.1$, and $L = 0.0417$ henry. Now, this value agrees with the equivalent inductance which the bridge gave, but *this is only true where the resistance is negligible*.

The equivalent resistance measured with the bridge was 8 ohms. From the laws of the parallel circuit (equation 1), the equivalent resistance should be $1/R = 1/10 + 1/20 = 0.1 + 0.05$ and $R = 6.66$ ohms. Now, the measured resistance was more than an ohm higher than the computed resistance. Of course, there is opportunity of bridge error, but the *relation given by equation* (1) *should not hold anyway, and should not be used*. The equivalent inductance and resistance should in general only be computed as will be explained in the following article where the detailed solution of parallel circuits is given.

Condensers in Series: Unless condensers are "leaky" and hence

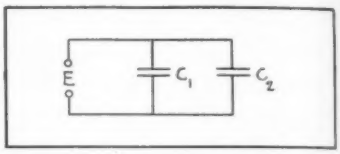


Fig. 5. When Condensers Are Connected in Parallel, Their Capacitances Add Directly.

useless for most purposes, their losses are generally negligible; therefore, their effective or equivalent alternating-current series resistance is negligible. (Of course their insulation resistance must, therefore, be very high, but this resistance is *in parallel* with the capacitance as explained in a previous article.) For good condensers, therefore, the resistance component does not require consideration, and the problem is one of combining capacitances only.

When two or more condensers each of capacitance, C, are connected in series and to a source of voltage as in Fig. 3, the *equivalent capacitance* measured at the terminals of the series combination is:

$$\frac{1}{C_1} = \frac{1}{C_1} + \frac{1}{C_2} + \text{etc.} \ldots\ldots \quad (3)$$

A simple explanation for this relation is as follows: The quantity of electricity, Q, a condenser takes when it is connected to a source of voltage is $Q = CE$. Thus, the voltage across a condenser may be expressed in terms of the quantity of electricity, Q, and the capacitance, C, as $E = Q/C$.

Now, the total voltage E of Fig. 3 must be the sum of the voltages across each condenser, or $E = E_1 + E_2$. This can be written $Q/C = Q_1/C_1 + Q_2/C_2$. But, $Q = Q_1 = Q_2$, because the *amount* of electricity in *each* condenser and in the *equivalent capacitance* of all in series is the same. The reason for this is:

The upper plate of condenser C_1 takes a certain positive charge, and the lower plate must become equally

(*Continued on page* 21)

Answers to Problems of Eighth Installment:

Here are the answers to problems concerning fundamental principles of electricity given in the eighth article of this series, entitled "Alternating Current Theory" (TELEPHONY, March 30):

18. One-fourth of a cycle or 1/4000 second.

19. $X_L = 2\pi fL = 6.2832 \times 1000 \times 0.3 = 1885$ ohms.

$Z = \sqrt{(175)^2 + (1885)^2} = 1895$ ohms.

20. At 10,000 cycles $X_L = 6.2832 \times 10{,}000 \times 0.3 = 18{,}850$ ohms.

At 100,000 cycles $X_L = 6.2832 \times 100{,}000 \times 0.3 = 188{,}500$ ohms.

21. At 1,000 cycles $X_c = 1/2\pi fC = 1/(6.2832 \times 1{,}000 \times 0.000002) = 79.6$ ohms.

At 10,000 cycles $X_c = 1/(6.2832 \times 10{,}000 \times 0.000002) = 7.96$ ohms.

At 100,000 cycles $X_c = 1/(6.2832 \times 100{,}000 \times 0.000002) = 0.796$ ohms.

22. $X_c = 1/(2\pi fC) = 1/(6.2832 \times 1{,}000 \times 0.0000012) = 133$ ohms.

$Z = \sqrt{(100)^2 + (133)^2} = 166.5$ ohms.

(*Continued from page* 16)

negative. Hence, the upper plate of C_2 must be left with a positive charge equal to the positive charge of the condenser C_1, and the lower plate takes a negative charge equal to that of C_1. Thus, both condensers take the *same* quantity of electricity, Q, and the Q terms can be cancelled since they are equal, giving equation (3).

From the foregoing reasoning, it follows that the *capacitance of two or more condensers in series is less than the capacitance of any one alone.* Nevertheless, it is often of advantage to connect condensers in series. For example, a one microfarad condenser may be needed, and only two microfarad condensers are available. Connecting two of these in series will give one microfarad equivalent capacitance.

Connecting condensers in series *increases* the voltage which they will stand. Thus, suppose that a number of two microfarad condensers which will stand 200 volts are available, but a capacitance of two microfarads to be used in a 400-volt circuit is desired. A series-parallel combination of the available condensers, connected as shown in Fig. 4, will give the desired capacitance capable of being used in 400-volt circuits. As explained in the discussion accompanying Fig. 3, the condensers will divide the impressed voltage, and in this instance each condenser will have only its rated 200 volts across it.

A word of warning should be given here. First, if the capacitances are not equal, the voltages across each will not be equal, and hence one of the two condensers of unequal capacitance may be overstressed and may fail. Since the charges and the quantity, Q, on each of two or more series condensers must be the same, and since $E = Q/C$, if the values of the capacitances, C, are not equal, the voltage, E, across each will not be the same but will be inversely proportional to the capacitance. That is, the one having the high capacitance will have the low voltage across it, and vice versa.

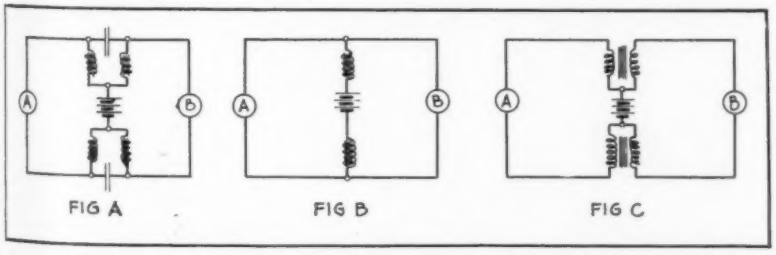


Fig. 6. Illustrating Three Possible Methods for Connecting Two (or More) Lines, A and B, to the Central Office Common Battery.

Also, electrolytic condensers in series are not stable, and even if of the same capacitance (under normal operating conditions), their capacitance will tend to be erratic when they are in series. They are unsuited, therefore, for series operation unless they have very high fixed resistances, such as grid leaks, connected in parallel with them to put a definite voltage across each, and thus stabilize their capacitance value.

Condensers in Parallel: When two or more condensers are connected in parallel as in Fig. 5, each condenser takes a charge of Q units of electricity. Hence, the total quantity of electricity stored in the condensers is $Q = Q_1 + Q_2$, and $CE = C_1E + C_2E$. Now the voltage across each is the same, and hence may be eliminated giving,

$$C = C_1 + C_2, \text{ etc.} \qquad (4)$$

That is, *when two or more condensers are connected in parallel, the total capacitance is the sum of the separate capacitances.*

Referring back to the preceding section to the discussion regarding the series-parallel condenser combination, it is now evident why that circuit was adopted. Each series group will stand twice the voltage of one, but each series group has *one-half* the capacitance. Connecting two such series groups in parallel, however, gives twice the capacitance or two microfarads for the series-parallel combination.

Coils and Condensers in Communication Circuits: It is, of course, only possible to very briefly consider such applications. This being true, several circuits of basic importance will be analyzed, showing the application of coils (including transformers) and condensers to actual circuits.

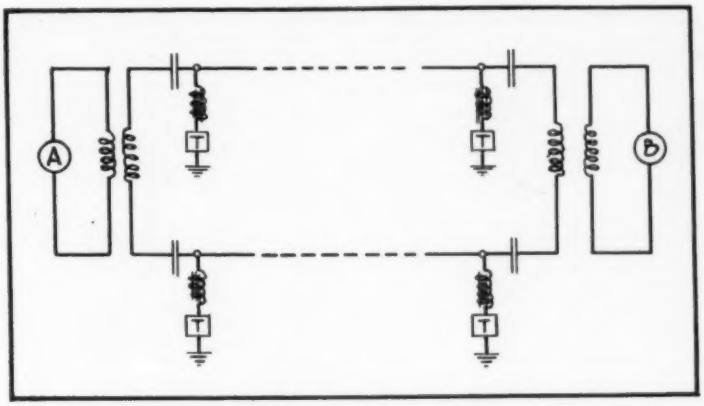


Fig. 7. Illustrating the Composite Method of Simultaneously Operating Telephone and Telegraph Systems Over Two Line Wires.

The methods of connecting the many subscribers' lines in a telephone system to one common battery is an excellent illustration of the use of coils, condensers, and transformers. One method is shown in Fig. 6-A. The retard or inductance coils are *not* coupled magnetically. The direct-current for the transmitters, A and B, readily passes through these coils. The alternating-current component, produced by the variations in transmitter resistance as sound waves strike the diaphragm, is readily passed through the condensers connecting one telephone line to the other.

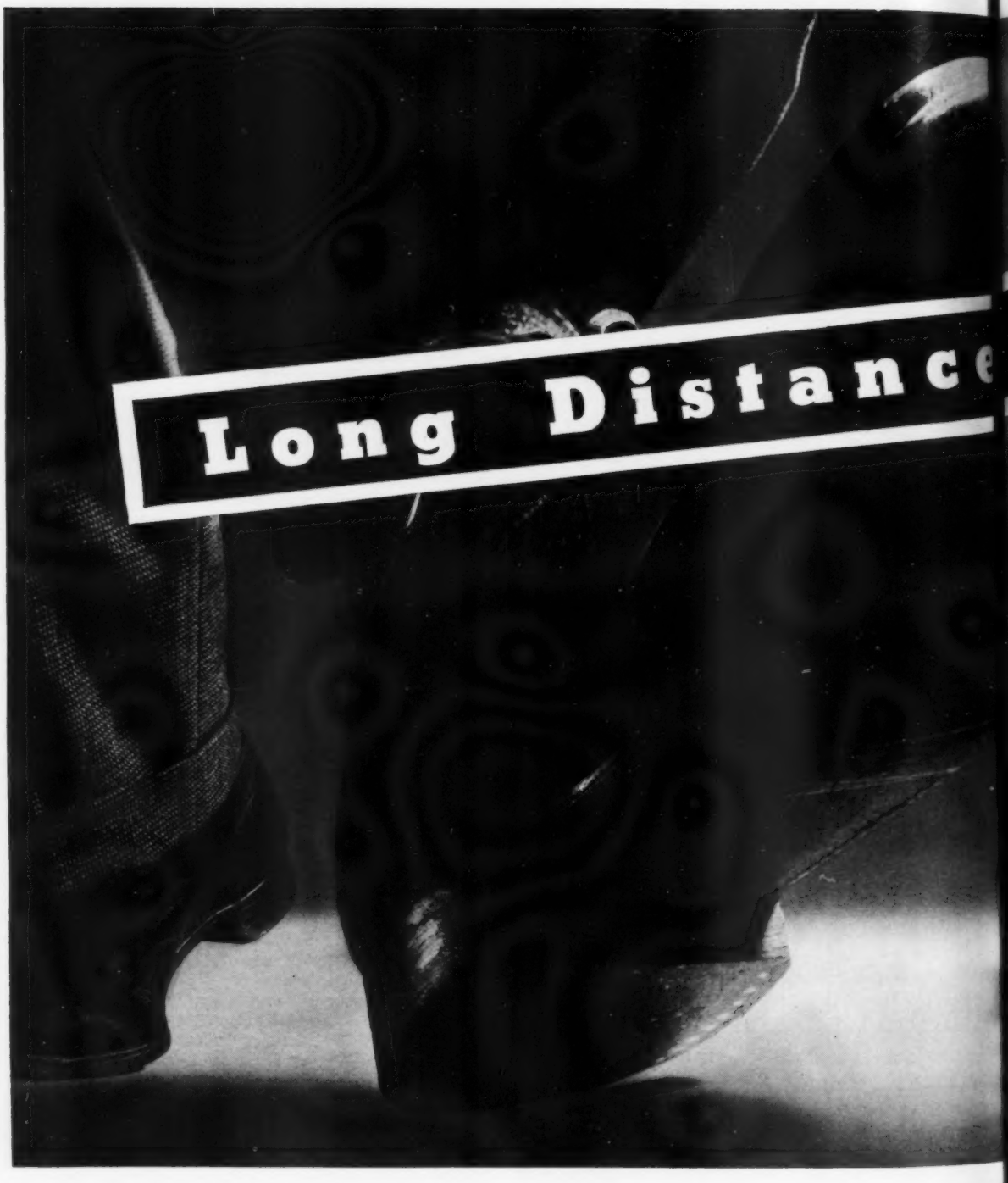
Another method is illustrated in Fig. 6-B. Here again the transmitter current passes through the coils. These coils offer high impedance to the alternating-current voice currents, and thus the talking currents flow around through the telephone instruments instead of through the battery.

The connections of Fig. 6-B are usually employed only in apartment house and similar telephone systems where the length of all the lines is about the same. Fig. 6-B is a parallel circuit for the direct-current transmitter currents, and, thus, if a long line and a short one were connected for talking, the short line would take most of the direct current, thus greatly lowering the alternating-current output from the transmitter in the long line.

The widely-used circuit of Fig. 6-C

(*Concluded on page* 24)

DRAMA



AN ADVERTISEMENT OF THE BELL TELEPHONE SYSTEM

T I Z I N G

SALESMAN: OLD STYLE

YESTERDAY'S salesmen plodded from office to office, from town to town, and wasted much time waiting to see prospects. Today's successful salesmen are those who have learned that Long Distance telephone service saves leg-work, lobby-sitting, and useless visits.

Long Distance is quick, direct. It cuts through cordons of secretaries, reaches the right man at the right time. It closes sales, or arranges appointments for necessary personal calls. It provides close contact between trips, clears up questions and complaints. It is so *flexible* that almost every kind of business can use it *profitably*.

A Great Lakes transportation company tried systematic telephone selling, found the cost averaged less than 1.3%. A dress manufacturer increased attendance at showings and doubled sales on a single trip by telephoning invitations to customers in advance. A food packer reports that one call landed a $10,000 order. His telephone collections of overdue accounts are 95% effective.

Long Distance will widen markets, multiply man-power, pay its own way in your business, too. Ask your local telephone company to discuss its application to credit, production, and traffic, as well as sales. No obligation.

CURRENT LONG DISTANCE advertising is largely of two types. One features the specific experience of a company using the service. The other highlights its numerous advantages in a more general way. Representative of the second type is the advertisement shown above. It appears in national publications during May. It is addressed to salesmen and to those who employ salesmen. It is supported by sales figures from three very different kinds of business. It definitely directs inquiries to the local telephone company.

As modern salesmen cover every corner of the country . . . as Long Distance calls criss-cross company lines . . . the entire telephone industry should share in the traffic stimulated by such advertising.

(*Concluded from page* 21)

employs transformers or repeating coils, the windings of which are inductively coupled, to prevent this difficulty. With this system, the transmitter current each line receives is independent of the length of the other line, because each line is, in effect, separately connected to the battery.

In the preceding paragraphs the coils and condensers were really used to separate alternating-current and direct-currents. A similar illustration of this use is the composite telegraph system simplified in Fig. 7. The two telephone circuits, A-B, operate over the long toll line in the usual manner; the alternating-current voice currents for talking pass easily through the condensers, but do not pass through the coils connected to ground. These coils, however, pass the interrupted direct current (which may be considered a very low-frequency alternating current if desired), permitting the operation of one grounded telegraph over each telephone line wire.

Summary: A very wide range of frequencies is employed in the various systems of electrical communication. Most systems operate at the voice frequencies, a good commercial telephone system passing at least a band from 250 to 2750 cycles.

The same fundamental relations apply to series and parallel combinations of resistors in alternating-current circuits as to direct-current circuits. The effective or alternating-current resistance and not the ohmic or direct-current resistance must be used.

If two or more coils are connected in series, the total inductance is the sum of the separate inductances, and the total resistance is the sum of the separate resistances. When coils are connected in parallel, however, no simple relations exist unless the resistances are negligible.

In condensers the losses and the effective resistances are usually negligible. Thus, the simple laws of equations (3) and (4) apply.

Problems:

23. A circuit consists of a 100-ohm resistor *in parallel* with an 80-ohm resistor, and this parallel combination is *in series* with a 40-ohm resistor. This combined circuit is connected across a 10-volt 1000-cycle circuit. Calculate the current through each resistor.

24. A coil having an inductance of 0.01 henry and a resistance of 100 ohms is connected in series with a coil of 0.015 henry inductance and 25 ohms resistance. Calculate the impedance of each and the total impedance of the series combination when connected across a 1000-cycle source.

25. A 2 mfd. and a 1 mfd. condenser are connected in series across 200 volts. Compute the equivalent capacitance of this combination and the voltage across each.

26. A large number of 2 mfd., 200-volt condensers are available. Compute the equivalent capacitance and the voltage four of these will stand if in series as in Fig. 3. Compute the equivalent capacitance and the voltage four of these will stand if they are in a series-parallel combination as in Fig. 4. Compute the equivalent capacitance and the voltage four of these will stand if they are in parallel as in Fig. 5.

Work out the answers to these problems and hold them to compare with the correct answers. These will be published with the next instalment in this series of articles on electrical fundamentals for the telephone worker.

• • •

JUST FOLKS

By MISS ANNE BARNES

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

Why is it most people would rather shop in the mornings than in afternoons?

Why is it we enjoy our work at the switchboard more in the mornings than in the afternoons, even though we are much busier the first half of the day?

Is it not because folks, in general, are rested in body and spirit after a good night's sleep? Are brighter, more alert, and more accommodating for this reason?

In the morning salespeople, telephone operators, and customers come into places that are fresh, clear, and aired. In the stores the stock is in order, and in telephone exchanges everything is ready to start the day right. Last, but not least, our customers are in a more pleasant mood; and so are we.

As the day wears on into mid-afternoon, many moods seem to change. The lived part of the day, filled with experiences of one kind or another, has changed dispositions of many people, for the time being, from sweet to sour, thoughtful to thoughtless, kind to unkind. By mid-afternoon, their vigor and enthusiasm have given out.

In the stores, people are too tired to continue shopping, too worried to make right decisions regarding merchandise. They are in a hurry and the stores are crowded. They can't find what they want at the price they want to pay. They are uncomfortable physically. They paw over the merchandise, think the salespeople seem irritated and so walk out.

Then they go home, telephone their friends and tell them what a wretched day they had and how they "couldn't find a thing." They seem like different personalities to us from what they were in the morning.

How about us, telephone operators? Do our voices, in the afternoon, sound as cheery and "glad to help you" as they did in the morning? Does that "Number, please?" phrase sound as though we were addressing a human being, or does it sound like the yap of a young dog?

By the way, I visited an office recently where the operator's answering phrase was, "Yello?" I have added that to my list of "awfuls." Here are some of them: "Heddo" (sounds like a head cold), "Nompls" (sounds like nothing), "Ber-pls" (sounds like a hiccough). These will do, for the present. Do any of them match yours?

Let us all check up on our answering phrases. Perhaps some of them affect the disposition of a foot-sore, late-afternoon shopper like a red rag affects the disposition of a bull.

MORAL: Don't be an irritation to folks any day—morning or in the afternoons?

Recent Prices in the Metal Market

New York City, April 29: Copper—Quiet; electrolytic, spot and future, Blue Eagle, 9.00c per lb. Tin—Irregular; spot and nearby, 50.37c per lb.; future, 49.35c. Iron — Quiet; f. o. b. eastern Pennsylvania, $19.50 per ton; Buffalo, $18.50; Alabama, $14.50.

Transportation AT LOW COST

ECONOMY is the sum and substance of truck ownership. You may do without economy in a car but the truck is a stern business proposition. It has always been so—*but today more than ever.* For more than 30 years International has sought one objective—transportation at the lowest possible cost for the man with loads to haul. That is the root and heart of International Truck success.

That 30-year endeavor bears sound fruit today in the new Internationals. Their unfailing day-in and day-out service will give you a new idea of dependable truck performance. And every mile they run and every load they haul will be a revelation to you in lower figures on your cost sheets.

The more minutely you examine their advanced design and construction the easier you will understand their stamina and performance. And the more you talk to owners the more impressed you will be with the low-cost hauling Internationals deliver. Sizes range from ½-ton to 10-ton. Sold and serviced through 230 Company-owned branches, and dealers everywhere.

INTERNATIONAL HARVESTER COMPANY
606 So. Michigan Ave. **OF AMERICA** *(Incorporated)* **Chicago, Illinois**

Illustrated below is a new Half-Ton Model C-1 International Truck with pick-up body owned by the Winnipeg Electric Co., Winnipeg, Canada.

INTERNATIONAL TRUCKS

Two-Way Conversation Entirely Around World

THE HUMAN VOICE traveled around the world for a new distance and time record on April 25 when Walter S. Gifford, president of the American Telephone & Telegraph Co., talked over a 23,000 mile telephone and radio circuit that originated and terminated in the Long Distance building at 32 Sixth Avenue, New York City. The voices girdled the globe in one-quarter of a second.

Map Showing Course Taken in the Two-Way Telephone Conversation Around the World by Walter S. Gifford, of New York City, President of the American Telephone & Telegraph Co.

"This is another step in the conquest of time and space by man," said Mr. Gifford to Vice-president T. G. Miller, head of the company's long lines department, "and proves there are no earthly limits to human speech."

In this first demonstration of a two-way telephone call entirely around the world Mr. Gifford used the longest telephone circuit ever established. The route of the call was through San Francisco, Java, Amsterdam, London and back to New York. From New York his voice crossed the continent over wire through St. Louis, Los Angeles to San Francisco, and then to the Bell System's short wave transmitting station at Dixon, Calif.

From this station Mr. Gifford's voice was magnified many millions of times and hurled 9,000 miles across the Pacific to the overseas telephone terminal of the Netherlands Telephone Administration at Bandoeng in Java. There it was transferred to another short wave radio telephone circuit spanning the distance of 7,000 miles to Amsterdam.

By submarine cable beneath the North Sea the voice path led over wires and cables to the London trunk exchange and thence to the Rugby radio station of the British Post Office. At Rugby the voice impulses were again shot into the ether by short wave radio and were received at the American Telephone & Telegraph Co. station at Netcong, N. J. The remainder of the route was over telephone cable.

The answering voice sped in the opposite direction. At Lawrenceville, N. J., it was put on the air to be received at Baldock, England. Thence it went by wire through London to Amsterdam where a short-wave radio telephone station once more hurled the voice impulses through the ether to Java.

The circuit linking the two telephones actually within 50 feet of each other was more than 23,000 miles long. The voice impulse covered this distance in a quarter of a second.

In crossing the international date line far out on the Pacific, the voices of the speakers went from today into tomorrow and then back into today again. In New York it was half past nine Thursday morning. At San Francisco the clocks read 6:30 a. m. As the voice of the first speaker sped across the Pacific the clocks in Hawaii had just struck 4 a. m.

Farther out in the Western Pacific ships' bells were striking once, indicating 12:30 a. m. Friday. In the Java receiving station, however, the clocks showed 10 p. m. Thursday evening. The hands on Big Ben in London pointed to 2:30 p. m. as the voice impulses flashed through the London trunk exchange. Mr. Miller heard Mr. Gifford's voice at a quarter of a second after 9:30 a. m.

Following his informal conversation with Mr. Miller, Mr. Gifford called the roll of the various points through which the circuit passed, speaking in turn with the telephone engineers at San Francisco, Java, Amsterdam and London.

The talk was staged by engineers of the company "to see how it would work from a technical and scientific standpoint."

• • •

Telephones 6,000 Miles to Consult Doctor

An ailing department-store operator of Wilkes-Barre, Pa., while in Honolulu, put through a 6,000-mile telephone call early this month to his personal physician in Wilkes-Barre, describing symptoms of his illness and receiving, in turn, a special prescription. The call was made by Daniel E. Newell, retired department-store owner, to Dr. Daniel F. Daley.

SATISFIED SUBSCRIBERS

The excellent performance of LEICH handset telephones will overcome the criticism of the most critical subscriber.

"Cannot hear"! "Cannot make others understand"! "Poor appearance of equipment"!

The new LEICH handset telephones are beautiful in appearance and unsurpassed for quality of transmission and reception. Install one for that critical subscriber and make him a booster for your service.

The receiver response covers the voice range satisfactorily. The transmitter is of the immersed electrode type with excellent transmission in any position. The handset is light in weight and perfectly balanced. The symmetry of design is the final proof of this instrument's appeal to the public.

Get a LEICH handset telephone on 30 days' trial.

Bulletin No. 165 describes all LEICH telephones.

Have you a copy?

LEICH ELECTRIC CO.

GENOA, ILLINOIS

Small

Sherman Solderless Service Connectors

For Making Solderless Line Taps

TS-8 and TS-10 Connectors will take care of installations where No. 14, No. 16 or No. 17 drop wires are taken off from a No. 8 or No. 10 lead wire.

Tough Bronze in every part — tight contact — Bolt, Spacer and Nut, an integral assembly, assuring strength.

Write for Trade Bulletin No. 22

H. B. Sherman Mfg. Co.

Battle Creek, Michigan

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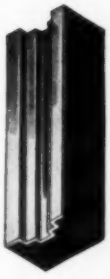

Results have convinced telephone managers that Cook True Gap Dischargers DO keep circuits free from high potentials without permanently grounding the line.

Have you tried these efficient, economical, labor-saving units?

Sample on request.

COOK ELECTRIC CO.

2700 Southport Avenue **CHICAGO**

A. T. & T. Co. Celebrates 50th Birthday

THE four corners of the land were brought together Sunday evening, April 28, in a nation-wide broadcast on the Columbia chain of 93 coast-to-coast stations in celebration of the 50th anniversary of the organization of the American Telephone & Telegraph Co.

To show the scope of long distance telephone service as developed in the company's half-century of operation, four cities—San Diego, Calif.; Eastport, Me.; Bellingham, Wash., and Key West, Fla.—the "four corners of the country," so far as radio broadcasting is concerned, were called successively for participation in the program.

Another feature of the program consisted of a dramatization of telephone conference service with Miss Grace Moore, Jerome (Dizzy) Dean, Rufus Dawes, Admiral C. T. Grayson, chairman, American Red Cross; K. T. Compton, president, Massachusetts Institute of Technology; and Ted Husing, announcer, participating. Radio listeners were afforded the opportunity of listening to a long distance round-robin conversation conducted by these prominent persons from widely-separated parts of the country, namely, Hollywood, Calif.; St. Louis, Mo.; Chicago, Ill.; Washington, D. C.; Boston, Mass., and New York, N. Y.

Edwin C. Hill, news commentator, and Channing Pollock, author and playright, told the story of the telephone in two groups of dramatizations. One group portrayed historic events in the development of telephone service, including the sending of the first call over telephone wires by Alexander Graham Bell, inventor of the telephone, to his co-worker, Thomas A. Watson.

The other group of dramatizations consisted in the making of four emergency calls, illustrating the part the telephone plays in modern life, in such activities as the pursuit and apprehension of criminals, the dissemination of news and the summoning of help in the case of a fire.

The musical background was furnished by an orchestra of 50 pieces, under the leadership of Andre Kostelanetz, augmented by a chorus.

The broadcast was concluded with a brief address delivered by Walter S. Gifford, president of the American Telephone & Telegraph Co., in which he briefly discussed questions of company policy and told how telephone service has been coordinated to serve the nation with efficiency and economy. He praised the American ideal of equal opportunity for every individual and the American spirit of enthusiasm and optimism.

"I appreciate the privilege of saying just a word on this occasion," said Mr. Gifford. "It is, perhaps, fitting when you are 50 years old to meditate for a few minutes on a Sunday on what has happened in the 50 years that are past and renew your faith in the future. In the present difficult times, we are all too apt to live in—and for the moment to take counsel of — the discouragements of the day and to live in fear of dire happenings in the future, most of which, if we may learn from the experience of the past, never happen.

The American Telephone & Telegraph Co. is 50 years old. It has become a great American institution. It is owned by you and your neighbors in every state in the Union. It belongs to 'Main Street.' More than half of its nearly 700,000 stockholders are women.

Its nation-wide organization, existing in substantially the same form for half a century, makes possible telephone service as we know it today. A telephone call is so easy to make that the person making the call has no idea of the complicated physical equipment and the vast organization of workers behind it.

Now, it obviously does not just happen that practically anyone, anywhere, any time of the day or night, can talk promptly with anyone else, anywhere

WALTER S. GIFFORD, President of the American Telephone & Telegraph Co., Declared in His Radio Address that "In the Telephone Company Our Policy and Method of Operating Are Based on the Long Pull. We Are Celebrating One 50 Years and Looking into the Next."

in this country or for that matter almost anywhere in the world. Nor does it just happen that the number of telephones per hundred of population in the United States is more than 16 times the average of that for the rest of the world and is nearly 50 per cent higher than any country in Europe.

It is the result of the free play of individual initiative and ability, fostered and given free rein during all these years in an institution which recognizes the American ideal of equal opportunity for each individual to develop to the fullest his talents and personality.

I want to express my admiration of the great army of telephone workers, over a quarter of a million in number, in all ranks of responsibility, who are engaged in operation, research, manufacturing and the many other activities necessary for furnishing telephone service to the 125,000,000 people of our country. These men and women are not only courageous and resourceful in emergencies, they are skillful and thoughtfully courteous in their day to day activities. They are determined to 'get the message through.'

During the world war I was privi-

THEY STAND THE "GAFF"

YEARS of satisfactory service under all conditions of anchor guying have proven the dependability of Eversticks. Their great strength and holding power, plus ease and speed of installation are reasons why they are preferred by construction and maintenance engineers the country over.

Everstick Anchors offer a complete line of guy anchors in 2-way, 3-way and 4-way expanding types. All are made of certified malleable Iron. Write for bulletin No. 1033 describing this complete line of Everstick Anchors and Pole Line Specialties.

EVERSTICK ANCHOR COMPANY
Fairfield, Iowa

EVERSTICK ANCHORS...

leged to serve as director of the Council of National Defense: I had a unique opportunity to see what Americans can do when the occasion demands. The spirit of enthusiasm and optimism was invincible. Instead of trying to prove that the possible couldn't be done, everyone was trying to see how the impossible—or what seemed impossible—could be and was done. It is this typical American spirit that assures our country getting out of its present difficulties. It is this spirit that has built up the Bell System, an institution that every minute of the day performs what 50 years ago would have seemed impossible miracles.

In the telephone company, our policy and our method of operating are based on the long pull. We are celebrating one 50 years and looking into the next. Practically everyone uses the telephone and most of the money in the business is the life-savings of people, and most of the work in it is done by people who devote their lives to it.

We shall continue our efforts to further improve telephone service and make it more economical for the user. We shall continue to try to keep the Bell System an attractive institution for people to work in and safe for investors.

Above all, we shall continue to strive to merit the good-will and the esteem of our fellow citizens and to keep the American Telephone & Telegraph Co. an institution that the American people can be proud of."

News from Various Commissions and Courts

New York Legislative Telephone Inquiry Dropped

The projected legislative investigation of telephone rates in New York state by the Mack investigating committee will not take place, it was said on April 18.

The reason for dropping the investigation into that phase of the utility question, it was asserted, is that the committee's appropriation was limited in Albany to $300,000, instead of the $600,000 which State Senator John J. Dunnigan, chairman of the committee, requested.

• • •

Bay State Commission Director Appointed

Senator Joseph C. White, of Jamaica Plain, Mass., who has been acting director of the telephone and telegraph division of the Massachusetts Department of Public Utilities since the retirement of William H. O'Brien a few months ago, has been officially designated to the post by Chairman Henry C. Attwill.

• • •

Nebraska Companies' Views on Depreciation

The Nebraska State Railway Commission began the hearing on Monday, April 22, of orders served upon the larger telephone companies of the state to show cause why an adequate depreciation rate should not be fixed by the commission for 1935.

The first company heard was the Platte Valley Telephone Corp. of Scottsbluff, which has a depreciable property valuation of $1,080,000, and which asked last year to charge 4.57 per cent or $49,340 to depreciation. The commissioner, however, fixed the rate at 3.5 per cent.

Otto Fuerst, general manager, said that the company was making no objections to a setup of 3.5 per cent for 1935, and had in fact made up its budget on that basis. He said that the mortgage underlying the company's bond issue required a setup of 5 per cent per year for depreciation. In order to take care of this the company had taken enough out of surplus and set it up in a special reserve, which now amounts to $16,000.

Commissioner F. L. Bollen said that in his opinion the requirement as to rate was subject to regulation by the commission, but that as this was meant to assure bondholders that the money would not be paid out in dividends, the matter will be let stand.

Accountant Schnell for the commission submitted figures showing that the plant has a depreciable value of $1,061,-

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Made specifically for protection against electric circuits up to 16,000 volts. Ideal for linemen and maintenance men. The Bond Voltpruf has no exposed metal and is equipped with the patented trouble-free Bond internal switch. The heavy fluted fibre case resists oil and gasoline, affords a solid grip and is comfortable even in cold weather.

Bond Mono-cell flashlight batteries give strong light, long service and cannot short in the case.

Send for new catalogue of 1935 Bond No. 6 telephone cells, spotlights, spreadlights, and "Mile Range" searchlights.

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257 CORNELISON AVE., JERSEY CITY, N.J.
BRANCHES AND WAREHOUSES CONVENIENTLY LOCATED

USE THE COUPON for quick, complete information on the newest Bond Voltpruf and other flashlights, Monocell flashlight batteries, Special Telephone Dry Cells, and automotive maintenance specialties for your fleet.

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000; that last year debits to depreciation were $41,688, or 3.93 per cent, while the setup was $36,537, or 3.44 per cent, with maintenance of 1.82 per cent.

The company's depreciation reserve now has $232,001 to its credit, or 21.87 per cent of the value of the investment, having been doubled in the last 7½ years, during which the expenditures quadrupled. During that period debits averaged 3.02 per cent and credits 4.51 per cent, with maintenance averaging 1.98 per cent.

The Nebraska Continental Telephone Co. was next in line. It has a depreciable property valuation of $2,313,000, and last year asked and was permitted to set up a lump sum of $65,000 to take care of this item. It asked that the same sum be fixed for 1935, but as this is less than 3 per cent, Commissioner Bolen questioned whether an order to that effect would comply with the provisions of the constitution that an adequate reserve must be set up to take care of this item.

Figures submitted by Accountant Schnell showed that the company's depreciable property is $2,184,000; debits last year were $129,811 or 5.94 per cent; credits, $65,000, or 2.98 per cent. The company's reserve totals $236,722, or 10.84 per cent of total value. Maintenance last year was 2.03 per cent, as compared with a five-year average of 2.26 per cent. Other five-year averages were: Debits to depreciation, 4.76 per cent, credits 5.31 per cent.

• • •

Suit Asks Dissolution and Appointment of Receiver

Suit asking dissolution of the partnership operating the Mount Pleasant (Ind.) General Telephone Co., an accounting and a receiver, is asked in a suit filed in superior court in Muncie, Ind., by Riley Felton, an employe and part owner, who alleges the company owes him money. The partnership was formed about 40 years ago, the complaint says, between the plaintiff, Parker Marshall, E. W. Walradth, Jacob Acker and A. L. Keesling and others, now deceased.

Previous to the formation of the Mount Pleasant company, the partnership operated the New Burlington Telephone Co., the Blountsville Telephone Co., the South Mount Pleasant Telephone Co., the Medford Telephone Co., and the Hasel Telephone Co., which were consolidated into the one now sought to be placed in receivership.

• • •

Dividends Stopped Until Investigation Is Made

On March 30 the Wisconsin Public Service Commission ordered the Community Telephone Co., of Black River Falls, Wis., which operates 34 exchanges in Wisconsin, to pay no dividends on its common stock until an investigation of its affairs can be made.

The order said that the company had cut operating expenses 38.7 per cent in the last five years. "This situation," the commission said, "raises the question of whether or not the property and service are being allowed to deteriorate for the purpose of obtaining sufficient funds to pay dividends on the stock, which is all held by the Inland Telephone Co., Kansas City, Mo.

"If there is impairment of capital," the order continued, 'it is unlawful to declare dividends until that impairment has been made good and it is our duty to act to prevent such payments."

The commission is investigating the company's depreciation rates. The company operates in Dunn, Rock, Walworth, Eau Claire, Pierce, St. Croix, Jackson, Trempealeau, Adams, Clark, Pepin, Waushara and Marquette counties.

• • •

Lincoln (Neb.) Company's 1935 Depreciation Rate

Responding to an order on the Lincoln (Neb.) Telephone & Telegraph Co. to show cause why the Nebraska State Railway Commission should not fix for 1935 a depreciation rate adequate to keep the investment intact, General Manager John H. Agee appeared to say that that is exactly what the company desires. He said that the company had been willing to go along with the commission in charging up against the depreciation fund 3.5 per cent until such time as economic condtions improve in its territory, but that the experiences of the company show that a much larger percentage must be set up.

Following the order of the commission to set up 3.5 per cent for 1934, the company finds that its actual expenditures for only such new construction and replacements as were necessary to keep the plant in a condition, where it is capable of giving first class service, exceeded that setup by $27,687 for the year. If the company had charged but 3.5 per cent depreciation during the 22 years of its existence, in its present physical setup, there would be no money at all in the depreciation fund; in fact a deficit would have been created.

Each year the company officials collect from local managers data concerning units of accrued depreciation in its physical and service plant, and during the latter months of the year these are gone over and a provisional estimate made. During the last few years conditions have compelled that new construction and replacements be held down to the minimum.

As made up for 1935 this estimate calls for the expenditure of $750,000 and the retirement of property that originally cost $701,000, and means deferment of a number of projects that must in the near future be taken care of in order that high grade service be maintained.

This calls for a charge to depreciation fund of 3.5 per cent, but the answer of the company asked for 4.8 per cent, as the necessary amount based on past experiences. The figure submitted includes nothing for obsolescence, inadequacy of plant because of public requirements of the wear and tear that has not yet been in evidence.

Mr. Agee said that the company had pursued a course of rigid economy during the last three or four years, and this had involved the construction only of the amount of plant required for service purposes.

Figures prepared by John H. Schnell, the commission's accountant, showed that since 1920 the company's plant and equipment investment had grown from $8,503,715 to $12,621,336, the latter figure showing a decrease of 1934 over 1933 of nearly $78,000. Debits to depreciation for 1934 were $45,815, or 3.62 per cent, while credits were $433,129, or 3.43 per cent.

Since 1920 the company's depreciation reserve fund has grown from $1,112,000, or 13 per cent of the depreciable property investment, to $3,285,000, or 26.03 per cent, a slight decrease from the previous year. It first reached 20 per cent in 1923, rose to 25.15 per cent in

COMING STATE CONVENTIONS

California Independent Telephone Association, Hotel Lafayette, Long Beach, May 7.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 8 and 9.

Pennsylvania State Telephone & Traffic Association, Penn-Harris Hotel, Harrisburg, May 16-18.

Up-State Telephone Association of New York, Onondaga Hotel, Syracuse, May 22 and 23.

North Dakota Telephone Association, Waldorf Hotel, Fargo, May 22 and 23.

Missouri Telephone Association, Hotel Muehlebach, Kansas City, May 27 and 28.

Independent Telephone Association of Washington, Ellensburg, June 14 and 15.

The Illinois Telephone Association, Hotel Pere Marquette, Peoria, November 14 and 15.

1927, but did not again exceed that figure until 1933. Maintenance expenditures in 1920 were $449,813, or 5.01 per cent.

The total increased steadily until they reached the high point of $633,465, or 5.03 per cent in 1930. The last three years they have been respectively $490,572 (3.08 per cent), $438,953 (3.46 per cent), and $490,509 (3.89 per cent).

• • •

Petition to Reduce Rates of Indiana Company Denied

The Indiana Public Service Commission in a decision issued April 19 denied a petition to lower rates of the Home Telephone & Telegraph Co. of Fort Wayne, Ind. The Fort Wayne petition originally was filed by the Keenan and Wayne Hotel companies, but the former withdrew. The commission said the petition was denied because the company had made only a reasonable profit and that its rates are moderate in comparison with other cities.

• • •

Newly-Organized Company Granted Bond Issuance

The Indiana Telephone Corp., organized to take over the old Southern Indiana Telephone & Telegraph Co., Seymour, Ind., which went into bankruptcy, has been authorized, by the Indiana Public Service Commission, to issue $500,000 in first mortgage bonds and to distribute 4,500 shares of common stock to holders of bonds of the old company. The reorganization plan had been approved by the federal court. The common stock, par value of which is $100, will be prorated to holders of bonds of the old company.

The new company, which takes over property of the old, will serve 37 towns in southern Indiana. The larger ones are Seymour, Huntingburg, Salem, Jasper, Orleans, Paoli, Scottsburg, Madison.

• • •

Missouri Supreme Court Upholds Rate Cut

Division one of the Missouri Supreme Court has upheld the order of the Missouri Public Service Commission reducing the rates of the United Telephone Co., of Clinton, 10.4 per cent. The commission order fixed a fair return to the company at 7 per cent.

• • •

Refused Permission to Change Exchange Service

The Nebraska State Railway Commission has dismissed the petition of a number of subscribers of the Kearney County Mutual Telephone Co., of Norman, for permission to take service from the Campbell exchange, after the company operating at Campbell had refused to build the necessary lines.

These rural land-owners live in the Campbell company's territory, service at Norman being at the time the only service available. Later the Kearney County company built a line to the Campbell exchange, and collected for the

Answers to Traffic Questions on Page 14

1. See the introduction to this series.
2. Refer the call to the supervisor. If, in her judgment, the customer's statement is correct, she will instruct the operator to ring the called number.
3. The call is subject to the person-to-person rate.
4. It is not necessary. However, in some instances the manager may instruct his operators to make a copy of toll tickets passed to the long distance operator as a matter of record and in this case you will, of course, comply with these instructions.
5. No.

Rural Community Telephoning

APRIL Issue is available NOW

We wish to suggest that all operating telephone companies who switch for and connect with farm line companies order copies of this magazine to be sent to the rural telephone systems in their territory.

The magazine will assist the small companies to improve transmission by telling them in simple, understandable language how to maintain and operate their plants.

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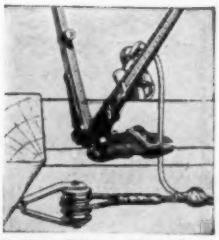

Cutting Wire. Note Angle of Jaws to Handles.

Cutting Wire from Above

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The PORTER HKP SWIVEL HEAD

In shops, factories, and garages we are told the Swivel Head doubles clipper use possibilities. On construction and line work the Swivel Head reaches around and over wires, cross arms and scaffolding, cutting bolts, rods, heavy wire, etc., easily and quickly. With the head turned at right angles the tool will stand on its head on the ground or hang from its neck in the air. Write us for work picture circular showing the Porter Swivel Head Clipper in action. Ask your supply house.

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latter the customary switching charge.

Collections, however, fell off to the point where they were less than the monthly switching charge due the Campbell company, and the connection with Campbell was discontinued.

• • •

Nebraska Company Authorized to Issue Stock

The Petersburg Telephone Co., operated for a number of years as a co-partnership by Patrick J. Carey, J. J. Andrae and Mrs. Anna V. Wiegand, has incorporated under the Nebraska law, and has been given permission by the Nebraska State Railway Commission to issue $6,000 of stock.

The commission finds that the owners have sacrificed dividends in the past, have written off large sums as uncollectible revenues and have so improved the company's condition financially and physically to justify the stock issue without a new appraisement of the company's entire property.

Commission Rulings and Schedule of Hearings

ALABAMA.

May 14: Opening hearing on actual taking of testimony in the general investigation of telephone rates in Alabama. The state is seeking a 40 per cent reduction in rates of the Southern Bell Telephone & Telegraph Co.

CALIFORNIA.

April 5: Conference called by President Leon Whitsell, of commission, to discuss the matter of some modification of the Beverly Hills telephone exchange area to bring about a reduced rate for users of foreign exchange service.

The Southern California Telephone Co. contends that by reason of the new extended service order of the commission, the whole extended service area—including those exchanges contiguous to the Los Angeles exchange—must be considered in fixing rates and in considering the net return to the company.

KANSAS.

April 17: Application filed by the Eastern Kansas Telephone Co. for permission to take over the property of the Kansas Home Telephone Co., in Wilson, Greenwood, Coffey and Woodson counties. The latter company is in the hands of a receiver.

The Eastern Kansas company also asked permission to issue $186,000 first mortgage bonds to effect purchase of the property and a certificate of convenience and authority to operate the lines it would take over.

Towns served by Kansas Home company are Burlington, Fredonia, Coyville, Lafountain, Buffalo, Fall River, Neosho Falls, Toronto, Quincy, New Albany, Altamont, Altoona, Piqua and Benedict.

May 7: Resumed hearing in Hutchinson in the commission's investigation there of telephone rates of the Southwestern Bell Telephone Co.

LOUISIANA.

May 7: Hearing in the commission's investigation of the rates of the Southern Bell Telephone & Telegraph Co.

MASSACHUSETTS.

April 10: The New England Telephone & Telegraph Co. has filed an amended rate schedule eliminating mileage charges for subscribers to four-party residence service in metropolitan Boston and in the Worcester and Springfield exchanges.

(*Concluded on page* 34)

OSCAR M. LEICH SUCCUMBS

Oscar M. Leich, of Genoa, Ill., secretary and general manager of the Leich Electric Co., and a pioneer in manufacturing equipment for Independent telephone companies, died early Monday morning, April 29, at his home in Genoa, De Kalb county. Mr. Leich was 59 years old and had been ill for some time. Funeral services were held in Genoa on April 30, with interment in West Bend, Wis.

He is survived by his wife and a daughter.

Mr. Leich was born in Wisconsin on August 25, 1875. After being graduated in 1898 from the University of Wisconsin where he specialized in electrical engineering, he became connected with the old Chicago Edison Co. in the drafting department and in engineering work. Later he went with the Western Electric Co., Chicago, working in the offices, the cable testing department and as a draftsman.

Leaving the Western Electric Co., Mr. Leich became associated with the old American Electric Telephone Co., Chicago, in the engineering department, and later in the sales department. From 1903 to 1907 he was with the Stromberg-Carlson Telephone Mfg. Co.

Leaving Stromberg-Carlson, Mr. Leich became connected with the reorganized Eureka Electric Co. under the name of Cracraft-Leich Electric Co. in 1907. Following the retirement in 1912 of the late J. P. Cracraft, Mr. Leich took over active management of the company. The name was changed in 1917 to the Leich Electric Co.

Mr. Leich is credited with originating and designing the two-frequency, four-party selective system, the Automaphone, and the pulsating current magneto harmonic system. He also designed transmitters, receivers, drops, relays, telephones, and other telephonic devices now in general use.

The Late Oscar M. Leich, of Genoa, Ill., Secretary and General Manager of the Leich Electric Co., as He Appeared About 1912.

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ELECTROX RECTIFIERS
For charging storage batteries in Telephone Service or operating P-B-X, P-A-X, C-A-X Systems without batteries.
Write for Circular 332.
Schauer Machine Co.
905 BROADWAY
CINCINNATI, OHIO

J. G. WRAY & CO.
Telephone Engineers
Specialists in Appraisals, Rate Surveys, Financial Investigations, Organization, and Operation of Telephone Companies.
3324 Bankers Bldg., Chicago

Buyer's Weekly Guide

A list of firms and companies offering equipment, supplies or services for operating telephone companies

ADDING MACHINES

Burroughs Adding Machine Company, Second Blvd., Detroit, Mich. — Adding, Bookkeeping, Calculating, Billing and Accounting Machines, Electric Carriage Typewriters, Standard Typewriters, Operator Correct-Posture Chairs. Burroughs machines are in use today in hundreds of progressive telephone companies throughout the country.

BATTERIES—DRY CELLS

Bond Electric Corporation, 257 Cornelison Ave., Jersey City, N. J.—Bond Telephone Dry Cells, Bond Flashlights and Batteries, Industrial Flashlights and Batteries, Bond Dry Batteries, Storage Batteries, Voltpruf Special Flashlights for linemen, Victor Telephone Cells and Bond Formula 1216 Inhibitor, ideal for keeping the cooling system of trucks and service cars free from rust, scale and corrosion.

Burgess Battery Co., Freeport, Ill.—Burgess Flashlights and Uni-Cel Flashlight Batteries—for dependability and service. The Burgess Twin-Six Telephone Battery —a 3-volt unit designed to replace two No. 6 cells, with longer life, lighter weight, smaller size and a leakproof case. The Burgess Little-Six—replaces the old type No. 6 cell, is smaller and lighter, will not ooze or bulge, has all the electrical capacity of the standard No. 6 cell.

National Carbon Company, 30 E. 42nd St., New York.—"Columbia" Telephone Dry Batteries; "Eveready" Flashlights, Flashlight Batteries and Long Life Dry Cells, "National Pyramid" brushes, carbon, graphite and metal graphite for motors, generators and rotary converters. "Eveready" Prestone anti-freeze; "Eveready" Rustone rust preventive; and "Eveready" Air Cell telephone operators' transmitter batteries.

Ray-O-Vac Company, Madison, Wis.—Ray-O-Vac telephone batteries — longer life and better service proven by tests in accordance with U. S. Government standards and records of users. Ray-O-Vac flashlights and industrial flashlight batteries are other items showing Ray-O-Vac's outstanding quality.

BATTERIES—STORAGE

The Electric Storage Battery Company, Allegheny Ave. and 19th St., Philadelphia, Pa.—Exide Storage Batteries. Branches: Boston, New York, Rochester, Philadelphia, Pittsburgh, Washington, Atlanta, Cincinnati, Cleveland, Detroit, Chicago, Kansas City, Minneapolis, St. Louis, Denver, San Francisco and Seattle.

BATTERY CHARGING EQUIPMENT

General Electric Company, Bridgeport, Conn.—Tungar battery chargers. G-E pole line hardware. Cable filling compound.

CABLE—LEAD ENCASED

American Electrical Works, Phillipsdale, R. I.—Paper telephone cable, switchboard cable, bare copper wire. Chicago Office: 20 N. Wacker Drive; Cincinnati: Traction Bldg.; New York: 100 E. 42nd St.

British Insulated Cables, Ltd., Surrey House, Embankment, W. C. 2, Factory: Prescot, Lancashire, England.—Telephone cable of all sizes and capacities.

General Cable Corporation, 420 Lexington Ave., New York, N. Y.—Paper telephone cables of standardized manufacture for over forty years. Weatherproof and insulated copperweld drop wire.

Eugene F. Phillips Electrical Works, Ltd., Montreal, Can.—For any type of wire or cable used in telephone, telegraph or power work get in touch with "Phillips." Manufacturers of bare and insulated copper wires, rubber insulated wires, enameled wire, magnet wire, telephone cables, power cables, switchboard cables, flexible cords, copper rods, etc.

CABLE RINGS

National Telephone Supply Company, 5100 Superior Ave., Cleveland, Ohio.—National Cable Rings, National Splicing Sleeves, Non-Breakable Messenger Cable Hangers, Marlin and Swisher Cable Hangers and Custom Galvanizers. National cable rings are practical because they are two-way,—they allow the cable to be pulled in either direction. National sleeves make secure the weakest points in the line. If it's a splice—make it a National.

CABLE TERMINALS

Cook Electric Company, 2700 Southport Ave., Chicago, Ill.—Protective Pole Cable Terminals, Unprotected Pole Cable Terminals, central office protection, lighting arresters, sleeves, fuses.

Reliable Electric Company, 3145 Carroll Ave., Chicago, Ill.—Complete line of cable terminals, telephone and switchboard protectors, sleeves, fuses, solderless wire connectors and specialties.

CARBON DIAPHRAGMS

Noris Carbon Company, Inc., 160 5th Ave., New York, N. Y.—Carbon diaphragms, carbon back plates, granular and globular carbons, lightning arresters.

CONDUIT

Brazil Hollow Brick & Tile Company, Brazil, Ind.—Makers of Brazil Vitrified Tile. Conduit.

CORDS, CABLE AND WIRE

Lenz Electric Manufacturing Co., 1751 N. Western Ave., Chicago—Established 1904—telephone and switchboard cords for all makes of equipment, braided and lead-covered telephone cable, flame-proof jumper wire, interior telephone wire, switchboard wire.

CORDS AND WIRE

Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago—Telephone and Switchboard Cords, Flame-proof Jumper Wire, Switchboard Wire, Interior Telephone Wire. W. L. Runzel, President, has devoted over 40 years to the making of fine telephone cords.

ELAPSED TIME RECORDERS

Calculagraph Company, 50 Church St., New York, N. Y.—Calculagraph is the world's standard elapsed time recorder and gives you toll records printed with elapsed time to the second. Both spring driven and electric motor models are available.

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

Alfred E. Cowling, Scotstown, Quebec.—Eastern cedar poles, plain or butt treated.

MacGillis & Gibbs Company, Milwaukee, Wis.—Northern White and Western Red Cedar Poles. Plain or butt-treated. Immediate quotations on request.

Michigan Pole & Tie Company, Newberry and Grand Rapids, Mich. — "Poles with Character." Northern White and Western Red Cedar. Strategically located yards, Minneapolis, Minn., and Reed City (Lower Michigan), insure quick deliveries.

Naugle Pole & Tie Co., 5 South Wabash Ave., Chicago, Ill. Northern White and Western Red Cedar Poles. Plain or butt-treated. Let us quote you our new low prices.

H. Sigalet & Company, Ltd., Lumby, B. C., Canada — Western Red Cedar Poles. Plain or Butt treated.

Valentine Clark Corporation, 2516 Doswell Ave., St. Paul, Minn.—Finished Cedar Poles. Plain or Butt treated.

SUPPLIES, SWITCHBOARDS AND INSTRUMENTS

American Automatic Electric Sales Company, 1033 West Van Buren Street, Chicago, Ill.—Public Automatic Telephone Systems, Private Automatic Telephone Systems, Central Battery and Magneto Manual Telephone Switchboards, Remote Control Switchboards, Telephone Instruments of all types, Battery Eliminators, Charging Equipment, Signaling and Control Apparatus, Cords, Wires, Cables, Monotype Copperweld Drop Wire, and a complete line of construction materials and supplies.

Automatic Electric Company, 1033 W. Van Buren St., Chicago, Ill.—Public Automatic Dial Systems, Private Automatic Dial Systems, Telephones, relays, signalling and control equipment.

Automatic Electric Company, Ltd., Milton Road, Edge Lane, Liverpool, England.—Automatic Telephone Equipment.

Automatic Electric Sales Company, Ltd., 1027 W. Van Buren St., Chicago, Ill.—Public Automatic Dial Systems, Private Automatic Dial Systems, Manual Telephone Equipment, telephones, storage batteries, wire, cable, poles, etc.

Kellogg Switchboard & Supply Company, Adams & Aberdeen Sts., Chicago, Ill.—Engineers and designers, manufacturers and suppliers of complete equipment for telephone exchanges and communication systems. Manufacturers of "Master-built" Common Battery, Magneto and PBX Switchboards, "Masterphone" Telephone Instruments, and a complete line of telephone supplies, including bronze drop and interior wire.

North Electric Manufacturing Company, Galion, Ohio—Machine switching telephone systems. Automanual and Automatic. "All-Relay" Switching Apparatus (Dialless and Dial Control). Unattended Satellite Systems.

Siemens Brothers & Company, Ltd., Woolwich, England—Automatic and Manual Telephone Equipment.

Stromberg-Carlson Telephone Manufacturing Company, 100 Carlson Road, Rochester, N. Y. — Telephone apparatus of all kinds, switchboard cords, cable and general telephone supplies.

TOOLS

Crescent Tool Co., Jamestown, N. Y.—CRESTOLOY Pliers, Curved Needle Nose Pliers, Heavy Diagonal Cutting Pliers, Linemen's Side Cutting Pliers, End Cutting Nippers, Crescent Hack Saws.

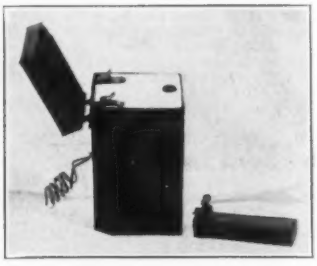
TRANSMITTER REPAIRS

The Telephone Repair Shop, 1760 Lunt Ave., Chicago, Ill.—Transmitters completely rebuilt and arranged for either magneto or C. B. service. Transmitter fronts and backs refinished in black. Transmitter buttons cleaned and refilled. Receivers repaired; ringer coils and generator armatures rewound.

CLASSIFIED SECTION

Rates 10 cents per word payable in advance. Minimum charge $2.00 for 20 words or less.

NEED TOLL TICKETS?
Write: Specialty Printers,
Bristol, Tenn.



Locate cable trouble with the **CANTY FAULT FINDER.** This new cable tester operates on two dry cells and locates all cable faults (except opens). There are two binding posts for lead wires to bad cable pairs. Adjustment of tone is simple,—move lock nut up or down. Size 3"x4"x7". No telephone exchange should be without the **CANTY FAULT FINDER.** Price $12.50 postpaid complete, less head set. Address 8101, care of TELEPHONY.

STOCK ITEMS

No. 17 Bronze Drop Wire

No. 12 BB Galvanized Iron Wire

Interior Duplex

Interior Triplex

Oak Pole Brackets

Cable Sleeves

(New Stock)

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BUCKEYE TELEPHONE AND SUPPLY CO.
COLUMBUS, OHIO

TRANSMITTERS
REPAIRED AND REBUILT
Guaranteed Quality—Any Quantity
Baked, black, velvet finish, New granular carbon. Workmanship, adjustments and tests made with the latest and most improved apparatus. 50c each less backs.
Full information on request
TELEPHONE REPAIR SHOP
Rogers Park Station Chicago

NEW LOW PRICES
Practically new No. 1 Wire Grips, $1.00 each. Refinished like new, late-type push-in, folding door telephone booths, $24.00 each. Also Linemen's Tool Boxes, 40"x20"x17" deep, $2.00 each. Prices F.O.B. Chicago.
W. M. MILLER & SONS
2553 W. Madison St. Chicago, Ill.

TELEPHONES
We have an extensive line of telephones of standard makes, remanufactured according to the best of modern practices.
MATERIALS, WORKMANSHIP AND ENGINEERING GUARANTEED
Liberal Trade-in Allowances.
UNION ELECTRIC CO.
1165 East 30th St., Indianapolis, Ind.

HELP WANTED

WANTED—Young man who can handle Class A telephone plant accounting. Permanent position; chance for advancement. References required. Address 8441, care of TELEPHONY.

POSITIONS WANTED

Competent telephone man experienced in all branches, desires position with active company. Will furnish A-1 reference; go anywhere, moderate salary. Address 8434, care TELEPHONY.

POSITION WANTED—By maintenance or construction cable splicer; can handle all other outside work; 16 years' experience. References. Box 8421, care of TELEPHONY.

POSITION WANTED—By all around telephone man with technical, engineering, managerial experience, Bell and Independent. Have ability to place telephone properties on better paying basis. Best references. Go any place. Address 8427, care of TELEPHONY.

MARRIED man, 41, wishes position as manager of a local telephone company. Twenty years' experience, will go anywhere. Excellent references. Address 8426, care of TELEPHONY.

NEWS FROM COURTS AND COMMISSIONS

(*Concluded from page* 32)

MICHIGAN.

April 16: Approval granted application of the Michigan Associated Telephone Co., of Muskegon, for permission to remove its $3.50 charge for installing telephones.

May 8: Hearing on the commission's citation of April 17 directing the Michigan Bell Telephone Co. to appear for a general hearing on its charges for all services.

The hearing will cover rates, rentals and tolls, and will be an attempt to reach a compromise on proposed rate reductions. It will cover the controversial question which has been fought out before the commission since the company petitioned in 1926 for the right to increase its telephone rates. The 1926 rate case still is pending in the United States district court at Detroit.

A petition submitted by former Attorney General Patrick H. O'Brien for a reduction in rates, which was submitted in 1934, is awaiting action by the commission.

MISSOURI.

April 20: Application filed by the Southeast Missouri Telephone Co. for authority to file new rate schedule for business telephone service at Perryville.

NEBRASKA.

April 22: At a hearing before the commission the Platte Valley Telephone Co., Scottsbluff, asked a 3.5 per cent depreciation rate and the Nebraska Continental Telephone Co., Columbus, urged a 2.98 per cent scale.

NEW YORK.

May 1: Continued hearing in the commission's investigation of the Up-State Telephone Corp. of New York.

OHIO.

April 22: Application filed by the Polk Rural Telephone Co., of Polk, for authority to sell its plant to the Star Telephone Co., of Ashland, in consideration of $3,000.

May 14: Hearing on complaint of the Richland County Medical Association against the Mansfield (Ohio) Telephone Co., charging that the company is planning to discontinue the designation in the telephone directory of members of the medical profession at Mansfield.

WISCONSIN.

April 15: The Badger State Telephone Co., with exchanges at Neillsville and Granton, and the St. Croix Valley Telephone Co., St. Croix Falls, have complied with the commission's order to reduce the additional extra charge for handset telephones.

The Badger State company accepted the continuous eight-cent additional monthly rate, and the St. Croix Valley company the two-year 25-cent monthly rate.

April 17: The Caroline Telephone Co., the Bear Creek Telephone Co., and the Urban Telephone Co., of Bowler, Tigerton, Marion and Clintonville, have adopted an eight-cent monthly additional charge for handset telephones, in accordance with an order of the commission on handsets.